PLANNING

PRICE

SANTAN

SOUTH MOUNTAIN

Arizona
Loop 101 South

Hydrology Study

Final Report
Volume II

Appendix D : Linked HEC-1 Models

Appendix E : Subbasin Models and Calibration Runs

Contract 88-24
Price Expressway
General Consultant
TRACS No. H-2222-01D

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

Prepared for :

Arizona Department of Transportation

Prepared by:

HDR Engineering, Inc.

Phoenix, Arizona

HDR

Registered Professional Engineer (Civil)
CERTIFICATE
177
LARRY STEVEN
MILLER
Date Signed 12-15-89
ARIZONA, U.S.A.

December, 1989

Volume II

APPENDIX D

HYDROLOGY STUDY REPORT

Linked HEC-1 Models

1. Area East of Price Road
2. Area West of Price Road

Plan sheets 2 and 3 from Volume I
are included in this volume.

HYDROLOGY STUDY REPORT

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Registered Professional Engineer (Civil) CERTIFICATE NO. 17244 LARRY STEVEN MILLER Date Signed 11-15-89 ARIZONA, U.S.A.

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VOLUME II

D. Linked HEC-1 Models
   1. Area East of Price Road
   2. Area West of Price Road

E. Subbasin Models and Calibration Runs
   1. Area East of Price Road
   2. Area West of Price Road

Appendix D-1. Area East of Price Road

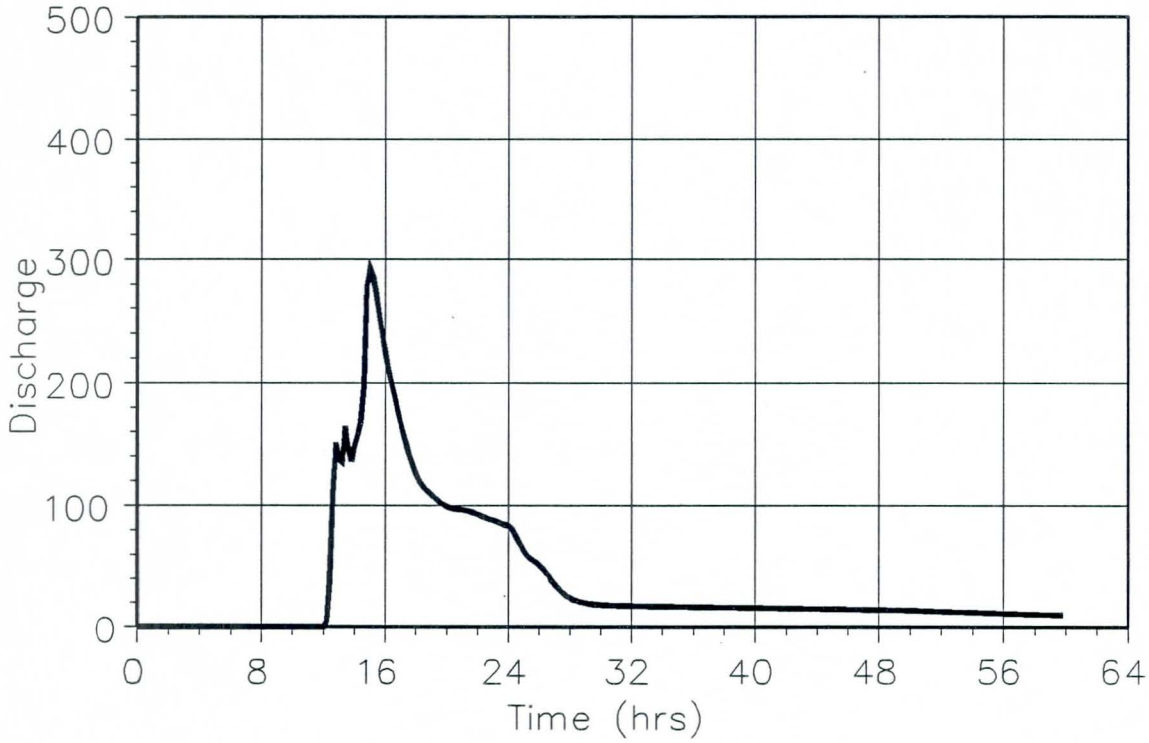
Outlet E - Model

Outlet F - Model

Outlet G - Model

Outlet H - Model

Outlet E - Model



Location: Price Expressway and Mesquite Street
Volume: 189 Acre-Feet
Peak Q: 292 Cubic Feet per Second

OUTLET E INFLOW HYDROGRAPH

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASINE

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  08/15/1989  TIME  14:48:11 *
*                                       *
*****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
****************************************
```

```
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
```

```
:::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::
:::                                     :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION  :::
:::                                     :::
:::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::
```

```
============================
H A E S T A D   M E T H O D S
============================
```

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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        Price Road Offsite Hydrology <BASE.DAT>
  2           ID        Flows to Price Road Basin "E"
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - August 9,1989   HDR - PHX
              *DIAGRAM
  5           IT      12                    300
  6           IO       3       0       0
  7           IN       5                    900

  8           KK    PT1C
  9           KM        Overflow hydrograph from east of SPRR tracks  F/C model
 10           BA    0.50
 11           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 12           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 13           QI    0.01    0.01    0.01    0.01    0.02    0.02    0.02    0.03    0.03    0.04
 14           QI    0.04    0.05    0.05    0.06    0.06    0.07    0.07    0.08    0.08    0.09
 15           QI    0.09    0.10    0.10    0.11    0.11    0.11    0.12    0.12    0.13    0.13
 16           QI    0.13    0.14    0.14    0.14    0.14    0.15    0.15    0.15    0.16    0.16
 17           QI    0.16    0.16    0.16    0.17    0.17    0.17    0.17    0.18    0.18    0.18
 18           QI    0.18    0.18    0.18    0.19    0.19    0.19    0.19    0.19    0.20    0.20
 19           QI    0.20    0.20    0.20    0.21    0.21    0.21    0.21    0.21    0.21    0.22
 20           QI    0.22    0.22    0.22    0.22    0.23    0.23    0.23    0.23    0.23    0.23
 21           QI    0.23    0.24    0.24    0.24    0.24    0.24    0.25    0.25    0.25    0.25
 22           QI    0.25    0.26    0.26    0.26    0.26    0.27    0.27    0.28    0.28    0.28
 23           QI    0.29    0.29    0.29    0.30    0.30    0.31    0.31    0.32    0.32    0.33
 24           QI    0.34    0.34    0.35    0.36    0.37    0.37    0.38    0.39    0.40    0.42
 25           QI    0.43    0.44    0.45    0.47    0.49    0.51    0.54    0.59    0.68    0.87
 26           QI    1.22    1.79    2.65    3.85    5.05    5.26    5.50    5.80    6.16    6.58
 27           QI    7.05    7.56    8.10    8.67    9.25    9.53    9.71    9.88   10.06   10.23
 28           QI   10.39   10.55   10.70   10.84   10.97   11.10   11.21   11.33   11.44   11.56
 29           QI   11.68   11.79   11.91   12.02   12.12   12.22   12.31   12.40   12.49   12.56
 30           QI   12.64   12.71   12.77   12.84   12.91   13.00   13.10   13.23   13.38   13.54
 31           QI   13.71   13.88   14.02   14.09   14.16   14.23   14.29   14.36   14.42   14.49
 32           QI   14.55   14.61   14.67   14.73   14.79   14.85   14.90   14.95   15.01   15.06
 33           QI   15.11   15.16   15.21   15.25   15.30   15.34   15.39   15.43   15.47   15.51
 34           QI   15.55   15.59   15.63   15.67   15.71   15.74   15.78   15.81   15.85   15.88
 35           QI   15.92   15.95   15.98   16.01   16.04   16.08   16.11   16.14   16.16   16.19
 36           QI   16.22   16.25   16.28   16.30   16.33   16.36   16.38   16.41   16.43   16.46
 37           QI   16.48   16.50   16.53   16.55   16.58   16.60   16.62   16.64   16.66   16.68
 38           QI   16.70   16.72   16.74   16.76   16.78   16.80   16.82   16.84   16.86   16.88
 39           QI   16.89   16.91   16.93   16.94   16.96   16.98   16.99   17.01   17.02   17.04
 40           QI   17.06   17.07   17.08   17.10   17.11   17.13   17.14   17.15   17.16   17.17
 41           QI   17.19   17.20   17.20   17.21   17.21   17.22   17.22   17.22   17.23   17.23
 42           QI   17.23   17.23   17.23   17.24   17.24   17.24   17.24   17.23   17.23   17.23
 43           QI   17.23   17.23   17.23   17.23   17.22   17.22   17.22   17.21   17.21   17.21
 44           QI   17.20   17.20   17.19   17.19   17.18   17.17   17.16   17.15   17.15   17.14
 45           QI   17.13   17.12   17.11   17.10   17.09   17.08   17.07   17.06   17.05   17.04
 46           QI   17.03   17.02   17.01   17.00   16.99   16.97   16.96   16.95   16.94   16.93
 47           QI   16.91   16.90   16.89   16.88   16.87   16.85   16.84   16.83   16.81   16.80
 48           QI   16.79   16.77   16.76   16.75   16.73   16.72   16.71   16.69   16.68   16.67
 49           QI   16.65   16.64   16.62   16.61   16.59   16.58   16.57   16.55   16.54   16.52
 50           QI   16.51   16.49   16.48   16.47   16.45   16.44   16.42   16.41   16.39   16.38
 51           QI   16.36   16.35   16.33   16.32   16.30   16.29   16.27   16.26   16.24   16.23
 52           QI   16.21   16.20   16.18   16.16   16.15   16.13   16.12   16.10   16.09   16.07
 53           QI   16.06   16.04   16.03   16.01   15.99   15.98   15.96   15.95   15.93   15.92
```

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

  54          QI   15.90   15.89   15.87   15.85   15.84   15.82   15.81   15.79   15.78   15.76
  55          QI   15.74   15.73   15.71   15.70   15.68   15.66   15.65   15.63   15.62   15.60
  56          QI   15.59   15.57   15.55   15.54   15.52   15.51   15.49   15.48   15.46   15.44
  57          QI   15.43   15.41   15.40   15.38   15.36   15.35   15.33   15.32   15.30   15.29
  58          QI   15.27   15.25   15.24   15.22   15.21   15.19   15.18   15.16   15.14   15.13
  59          QI   15.11   15.10   15.08   15.06   15.05   15.03   15.02   15.00   14.99   14.97
  60          QI   14.95   14.94   14.92   14.91   14.89   14.88   14.86   14.84   14.83   14.81
  61          QI   14.80   14.78   14.77   14.75   14.74   14.72   14.70   14.69   14.67   14.66
  62          QI   14.64   14.63   14.61   14.60   14.58   14.56   14.55   14.53   14.52   14.50
  63          QI   14.49   14.47   14.46   14.44   14.43   14.41   14.39   14.38   14.36   14.35
  64          QI   14.33   14.32   14.30   14.29   14.27   14.26   14.24   14.23   14.21   14.19
  65          QI   14.18   14.16   14.15   14.13   14.12   14.10   14.09   14.07   14.06   14.04
  66          QI   14.03   14.01   13.99   13.95   13.91   13.87   13.84   13.80   13.76   13.72
  67          QI   13.68   13.64   13.60   13.56   13.53   13.49   13.45   13.41   13.37   13.33
  68          QI   13.30   13.26   13.22   13.18   13.15   13.11   13.07   13.04   13.00   12.96
  69          QI   12.92   12.89   12.85   12.81   12.78   12.74   12.71   12.67   12.63   12.60
  70          QI   12.56   12.53   12.49   12.46   12.42   12.38   12.35   12.31   12.28   12.24
  71          QI   12.21   12.17   12.14   12.10   12.07   12.04   12.00   11.97   11.93   11.90
  72          QI   11.87   11.83   11.80   11.76   11.73   11.70   11.66   11.63   11.60   11.56
  73          QI   11.53   11.50   11.47   11.43   11.40   11.37   11.33   11.30   11.27   11.24
  74          QI   11.21   11.17   11.14   11.11   11.08   11.05   11.02   10.98   10.95   10.92
  75          QI   10.89   10.86   10.83   10.80   10.77   10.73   10.70   10.67   10.64   10.61
  76          QI   10.58   10.55   10.52   10.49   10.46   10.43   10.40   10.37   10.34   10.31
  77          QI   10.28   10.25   10.22   10.19   10.16   10.14   10.11   10.08   10.05   10.02
  78          QI    9.99    9.96    9.93    9.91    9.88    9.85    9.82    9.79    9.76    9.74
  79          QI    9.71    9.68    9.65    9.62    9.60    9.57    9.54    9.51    9.49    9.46
  80          QI    9.43    9.41    9.33    9.24    9.15    9.06    8.97    8.89    8.80    8.72
  81          QI    8.63    8.55    8.47    8.39    8.31    8.23    8.15    8.07    7.99    7.91
  82          QI    7.84    7.76    7.69    7.61    7.54    7.47    7.40    7.32    7.25    7.18
  83          QI    7.12    7.05    6.98    6.91    6.85    6.78    6.72    6.65    6.59    6.52
  84          QI    6.46    6.40    6.34    6.28    6.22    6.16    6.10    6.04    5.98    5.92
  85          QI    5.87    5.81    5.76    5.70    5.65    5.59    5.54    5.49    5.43    5.38
  86          QI    5.33    5.28    5.23    5.18    5.13    5.08    5.03    4.84    4.44    4.07
  87          QI    3.74    3.43    3.15    2.89    2.66    2.44    2.25    2.07    1.90    1.75
  88          QI    1.62    1.49    1.37    1.27    1.17    1.08    1.00    0.93    0.86    0.80
  89          QI    0.74    0.69    0.64    0.60    0.56    0.52    0.49    0.46    0.43    0.41
  90          QI    0.38    0.36    0.34    0.32    0.31    0.29    0.28    0.26    0.25    0.24
  91          QI    0.23    0.22    0.22    0.21    0.20    0.19    0.19    0.18    0.18    0.17
  92          QI    0.17    0.16    0.16    0.16    0.15    0.15    0.15    0.15    0.14    0.14
  93          QI    0.14    0.14    0.13    0.13    0.13    0.13    0.13    0.13    0.13    0.12
  94          QI    0.12    0.12    0.12    0.12    0.12    0.12    0.12    0.12    0.12    0.11
  95          QI    0.11    0.11    0.11    0.11    0.11    0.11    0.11    0.11    0.11    0.11
  96          QI    0.11    0.11    0.11    0.11    0.11    0.11    0.10    0.10    0.10    0.10
  97          QI    0.10    0.10    0.10    0.10    0.10    0.10    0.10    0.10    0.10    0.10
  98          QI    0.10    0.10    0.10    0.10    0.10    0.10    0.10    0.10    0.10    0.09
  99          QI    0.09    0.09    0.09    0.09    0.09    0.09    0.09    0.09    0.09    0.09
 100          QI    0.09    0.09    0.09    0.09    0.09    0.09    0.09    0.09    0.09    0.09
              *

 101          KK   RPT1C
 102          KM        Route SPRR track overflow to Arizona Ave and Elliot
 103          RK    5340  0.0015   0.023            TRAP     0.0    25.0
              *
```

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

 104          KK   OPT15
 105          KM        Optimized single basin for section 15 <ELA>
 106          KO       1       2
 107          PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 108          BA    0.92
 109          LS    2.20    82.5
 110          UD    0.91
              *

 111          KK  COPT15
 112          KM        Combine local runoff with SRPP track overflows at Arizona Elliot
 113          HC       2
              *

 114          KK  ROPT15
 115          KM        Route optimized single basin to Alma School and Elliot
 116          RK    5280  0.0008   0.016            TRAP     0.0    25.0

 117          KK    OPT9
 118          KM        Optimized single basin for section 9 <EAS>
 119          BA    0.44
 120          LS    2.11    75.8
 121          UD    1.35

 122          KK   COPT9
 123          KM        Combine sect. 15 and 9 optimized hydrographs
 124          HC       2

 125          KK   ROPT9
 126          KM        Route combined optimized basins to Elliot and Dobson
 127          RK    5280  0.0011   0.016            TRAP     0.0    50.0

 128          KK    OPT8
 129          KM        Optimized single basin for section 8 <ELD>
 130          BA    0.49
 131          LS    1.90    75.0
 132          UD    1.66

 133          KK   COPT8
 134          KM        Combine sect. 15,9 and 8 optimized hydrographs
 135          HC       2

 136          KK   ROPT8
 137          KM        Route optimized combined basins to Price Road basin "E"
 138          RK    5280  0.0011   0.016            TRAP     0.0    50.0

 139          KK    OPT7
 140          KM        Optimized single basin for section 7 <PEL>
 141          BA    0.56
 142          LS    2.20    89.7
 143          UD    0.32
```

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

  144         KK   COPT7
  145         KM        Combine sect. 15,9,8 and 7 optimized hydrographs at Price Road basin
  146         KO       1       2
  147         HC       2

  148         KK   OPT16
  149         KM        Optimized single basin for section 16 <WAS>
  150         BA    0.88
  151         LS    2.64    85.0
  152         UD    0.85

  153         KK  ROPT16
  154         KM        Route optimized single basin to Dobson and Warner
  155         RK    5280  0.0008   0.016            TRAP     0.0    25.0

  156         KK   OPT17
  157         KM        Optimized single basin for section 17 <DM>
  158         BA    1.00
  159         LS    2.45    82.3
  160         UD    1.14

  161         KK  ROPT17
  162         KM        Route optimized section 17 hydrograph to Dobson and Warner
  163         RK    2640   .0010    .016            TRAP     0.0    50.0

  164         KK  COPT17
  165         KM        Combine sect. 16 and 17 optimized hydrographs at Dobson and Warner
  166         HC       2

  167         KK   OPT20
  168         KM        Optimized single basin for section 20 <WD>
  169         BA    0.74
  170         LS    2.53   90.90
  171         UD    0.29

  172         KK  COPT20
  173         KM        Combine sect. 16,17 and 20 optimized hydrographs at Dobson and Warner
  174         HC       2

  175         KK  ROPT20
  176         KM        Route sect 16,17 and 20 combined optimized hydrographs to Price Road
  177         KO       1       2
  178         RK    5280  0.0019   0.016            TRAP     0.0    50.0

  179         KK   OPT18
  180         KM        Optimized single basin for section 18 <PW>
  181         BA    0.80
  182         LS    2.50    75.8
  183         UD    0.44
```

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

  184         KK  COPT18
  185         KM        Combined hyd. for all areas contributing to Basin "E" at Price Road
  186         KO      1       2                       60
  187         HC      3
  188         ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   8        PT1C
               V
               V
 101       RPT1C
               .
               .
 104           .       OPT15
               .          .
               .          .
 111      COPT15............
               V
               V
 114      ROPT15
               .
               .
 117           .        OPT9
               .          .
               .          .
 122       COPT9............
               V
               V
 125       ROPT9
               .
               .
 128           .        OPT8
               .          .
               .          .
 133       COPT8............
               V
               V
 136       ROPT8
               .
               .
 139           .        OPT7
               .          .
               .          .
 144       COPT7............
               .
               .
 148           .       OPT16
               .          V
               .          V
 153           .      ROPT16
               .          .
               .          .
 156           .          .       OPT17
               .          .          V
               .          .          V
 161           .          .      ROPT17
               .          .          .
               .          .          .
 164           .      COPT17............
               .          .
```

```
                .          .
167             .          .       OPT20
                .          .          .
                .          .          .
172             .      COPT20............
                .          V
                .          V
175             .      ROPT20
                .          .
                .          .
179             .          .       OPT18
                .          .          .
                .          .          .
184        COPT18........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASINE

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/15/1989  TIME  14:48:11 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
****************************************
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Price Road Offsite Hydrology <BASE.DAT>
Flows to Price Road Basin "E"
Initial abstraction used to represent development retention provided
100-Year 24-Hour Storm - August 9,1989 HDR - PHX

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

   IT         HYDROGRAPH TIME DATA
                    NMIN         12  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1    0  STARTING DATE
                   ITIME       0000  STARTING TIME
                      NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      3    0  ENDING DATE
                  NDTIME       1148  ENDING TIME
                   ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL     .20 HOURS
                  TOTAL TIME BASE   59.80 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
```

*** ***

```
          **************
          *            *
  8 KK    *     PT1C   *
          *            *
          **************
```

Overflow hydrograph from east of SPRR tracks F/C model

```
 7 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          5  TIME INTERVAL IN MINUTES
                   JXDATE      1   0  STARTING DATE
                   JXTIME          0  STARTING TIME

             SUBBASIN RUNOFF DATA

 10 BA         SUBBASIN CHARACTERISTICS
                    TAREA        .50  SUBBASIN AREA

                                                        ***

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

                     HYDROGRAPH AT STATION     PT1C

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
 (CFS)       (HR)                 6-HR      24-HR      72-HR     59.80-HR
   17.      26.20       (CFS)      17.        16.        11.        11.
                      (INCHES)    .319      1.209      2.056      2.056
                       (AC-FT)     9.        32.        55.        55.

                     CUMULATIVE AREA =     .50 SQ MI


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


          **************
          *            *
101 KK    *     RPT1C  *
          *            *
          **************
                         Route SPRR track overflow to Arizona Ave and Elliot

             HYDROGRAPH ROUTING DATA

103 RK         KINEMATIC WAVE STREAM ROUTING
                       L      5340.  CHANNEL LENGTH
                       S      .0015  SLOPE
                       N       .023  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .00  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD        .00  BOTTOM WIDTH OR DIAMETER
                       Z      25.00  SIDE SLOPE
                   DXMIN          2  MINIMUM NUMBER OF DX INTERVALS

                                                        ***
                                 COMPUTED KINEMATIC PARAMETERS
                                      VARIABLE TIME STEP
                                   (DT SHOWN IS A MINIMUM)
              ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                             (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                 3        .54      1.33      1.44    148.33     17.24   1622.28      2.02      1.71
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CONTINUITY SUMMARY (AC-FT) - INFLOW=   54.824  EXCESS=     .000 OUTFLOW=   53.941 BASIN STORAGE=     .871 PERCENT ERROR=     .022

                                        INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                     3        .54      1.33      12.00              17.24   1620.00      2.02

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

                       HYDROGRAPH AT STATION    RPT1C

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
     17.      27.00       (CFS)      17.         16.         11.         11.
                        (INCHES)    .319       1.209       2.023       2.023
                         (AC-FT)      9.         32.         54.         54.

                       CUMULATIVE AREA =     .50 SQ MI


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


          **************
          *            *
 104 KK   *     OPT15  *
          *            *
          **************
                            Optimized single basin for section 15 <ELA>

 106 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           1  PRINT CONTROL
                       IPLOT           2  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

               SUBBASIN RUNOFF DATA

 108 BA          SUBBASIN CHARACTERISTICS
                       TAREA         .92  SUBBASIN AREA

                 PRECIPITATION DATA

 107 PH                                 DEPTHS FOR   1-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
                   .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   40.00

 109 LS          SCS LOSS RATE
                       STRTL        2.20  INITIAL ABSTRACTION
                      CRVNBR       82.50  CURVE NUMBER
                       RTIMP         .00  PERCENT IMPERVIOUS AREA

 110 UD          SCS DIMENSIONLESS UNITGRAPH
                        TLAG         .91  LAG
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***

UNIT HYDROGRAPH
25 END-OF-PERIOD ORDINATES

43.	134.	286.	406.	440.	413.	348.	255.	177.	128.
95.	68.	49.	36.	26.	19.	14.	10.	7.	5.
4.	3.	2.	1.	0.					

****

HYDROGRAPH AT STATION OPT15

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	*	2		0600	151	.00	.00	.00	0.
1		0012	2	.01	.01	.00	0.	*	2		0612	152	.00	.00	.00	0.
1		0024	3	.01	.01	.00	0.	*	2		0624	153	.00	.00	.00	0.
1		0036	4	.01	.01	.00	0.	*	2		0636	154	.00	.00	.00	0.
1		0048	5	.01	.01	.00	0.	*	2		0648	155	.00	.00	.00	0.
1		0100	6	.01	.01	.00	0.	*	2		0700	156	.00	.00	.00	0.
1		0112	7	.01	.01	.00	0.	*	2		0712	157	.00	.00	.00	0.
1		0124	8	.01	.01	.00	0.	*	2		0724	158	.00	.00	.00	0.
1		0136	9	.01	.01	.00	0.	*	2		0736	159	.00	.00	.00	0.
1		0148	10	.01	.01	.00	0.	*	2		0748	160	.00	.00	.00	0.
1		0200	11	.01	.01	.00	0.	*	2		0800	161	.00	.00	.00	0.
1		0212	12	.01	.01	.00	0.	*	2		0812	162	.00	.00	.00	0.
1		0224	13	.01	.01	.00	0.	*	2		0824	163	.00	.00	.00	0.
1		0236	14	.01	.01	.00	0.	*	2		0836	164	.00	.00	.00	0.
1		0248	15	.01	.01	.00	0.	*	2		0848	165	.00	.00	.00	0.
1		0300	16	.01	.01	.00	0.	*	2		0900	166	.00	.00	.00	0.
1		0312	17	.01	.01	.00	0.	*	2		0912	167	.00	.00	.00	0.
1		0324	18	.01	.01	.00	0.	*	2		0924	168	.00	.00	.00	0.
1		0336	19	.01	.01	.00	0.	*	2		0936	169	.00	.00	.00	0.
1		0348	20	.01	.01	.00	0.	*	2		0948	170	.00	.00	.00	0.
1		0400	21	.01	.01	.00	0.	*	2		1000	171	.00	.00	.00	0.
1		0412	22	.01	.01	.00	0.	*	2		1012	172	.00	.00	.00	0.
1		0424	23	.01	.01	.00	0.	*	2		1024	173	.00	.00	.00	0.
1		0436	24	.01	.01	.00	0.	*	2		1036	174	.00	.00	.00	0.
1		0448	25	.01	.01	.00	0.	*	2		1048	175	.00	.00	.00	0.
1		0500	26	.01	.01	.00	0.	*	2		1100	176	.00	.00	.00	0.
1		0512	27	.01	.01	.00	0.	*	2		1112	177	.00	.00	.00	0.
1		0524	28	.01	.01	.00	0.	*	2		1124	178	.00	.00	.00	0.
1		0536	29	.01	.01	.00	0.	*	2		1136	179	.00	.00	.00	0.
1		0548	30	.01	.01	.00	0.	*	2		1148	180	.00	.00	.00	0.
1		0600	31	.01	.01	.00	0.	*	2		1200	181	.00	.00	.00	0.
1		0612	32	.01	.01	.00	0.	*	2		1212	182	.00	.00	.00	0.
1		0624	33	.01	.01	.00	0.	*	2		1224	183	.00	.00	.00	0.
1		0636	34	.01	.01	.00	0.	*	2		1236	184	.00	.00	.00	0.
1		0648	35	.01	.01	.00	0.	*	2		1248	185	.00	.00	.00	0.
1		0700	36	.01	.01	.00	0.	*	2		1300	186	.00	.00	.00	0.
1		0712	37	.01	.01	.00	0.	*	2		1312	187	.00	.00	.00	0.
1		0724	38	.01	.01	.00	0.	*	2		1324	188	.00	.00	.00	0.
1		0736	39	.01	.01	.00	0.	*	2		1336	189	.00	.00	.00	0.
1		0748	40	.01	.01	.00	0.	*	2		1348	190	.00	.00	.00	0.
1		0800	41	.01	.01	.00	0.	*	2		1400	191	.00	.00	.00	0.
1		0812	42	.01	.01	.00	0.	*	2		1412	192	.00	.00	.00	0.
1		0824	43	.01	.01	.00	0.	*	2		1424	193	.00	.00	.00	0.
1		0836	44	.01	.01	.00	0.	*	2		1436	194	.00	.00	.00	0.

1	0848	45	.01	.01	.00	0.	*	2	1448	195	.00	.00	.00	0.
1	0900	46	.01	.01	.00	0.	*	2	1500	196	.00	.00	.00	0.
1	0912	47	.02	.02	.00	0.	*	2	1512	197	.00	.00	.00	0.
1	0924	48	.02	.02	.00	0.	*	2	1524	198	.00	.00	.00	0.
1	0936	49	.02	.02	.00	0.	*	2	1536	199	.00	.00	.00	0.
1	0948	50	.02	.02	.00	0.	*	2	1548	200	.00	.00	.00	0.
1	1000	51	.02	.02	.00	0.	*	2	1600	201	.00	.00	.00	0.
1	1012	52	.02	.02	.00	0.	*	2	1612	202	.00	.00	.00	0.
1	1024	53	.03	.03	.00	0.	*	2	1624	203	.00	.00	.00	0.
1	1036	54	.03	.03	.00	0.	*	2	1636	204	.00	.00	.00	0.
1	1048	55	.03	.03	.00	0.	*	2	1648	205	.00	.00	.00	0.
1	1100	56	.04	.04	.00	0.	*	2	1700	206	.00	.00	.00	0.
1	1112	57	.05	.05	.00	0.	*	2	1712	207	.00	.00	.00	0.
1	1124	58	.06	.06	.00	0.	*	2	1724	208	.00	.00	.00	0.
1	1136	59	.07	.07	.00	0.	*	2	1736	209	.00	.00	.00	0.
1	1148	60	.23	.23	.00	0.	*	2	1748	210	.00	.00	.00	0.
1	1200	61	.39	.39	.00	0.	*	2	1800	211	.00	.00	.00	0.
1	1212	62	.96	.95	.01	0.	*	2	1812	212	.00	.00	.00	0.
1	1224	63	.27	.21	.06	4.	*	2	1824	213	.00	.00	.00	0.
1	1236	64	.20	.13	.07	14.	*	2	1836	214	.00	.00	.00	0.
1	1248	65	.06	.04	.03	32.	*	2	1848	215	.00	.00	.00	0.
1	1300	66	.05	.03	.02	54.	*	2	1900	216	.00	.00	.00	0.
1	1312	67	.04	.02	.02	71.	*	2	1912	217	.00	.00	.00	0.
1	1324	68	.04	.02	.02	80.	*	2	1924	218	.00	.00	.00	0.
1	1336	69	.03	.02	.02	82.	*	2	1936	219	.00	.00	.00	0.
1	1348	70	.03	.01	.01	78.	*	2	1948	220	.00	.00	.00	0.
1	1400	71	.03	.01	.01	71.	*	2	2000	221	.00	.00	.00	0.
1	1412	72	.02	.01	.01	64.	*	2	2012	222	.00	.00	.00	0.
1	1424	73	.02	.01	.01	58.	*	2	2024	223	.00	.00	.00	0.
1	1436	74	.02	.01	.01	53.	*	2	2036	224	.00	.00	.00	0.
1	1448	75	.02	.01	.01	49.	*	2	2048	225	.00	.00	.00	0.
1	1500	76	.02	.01	.01	45.	*	2	2100	226	.00	.00	.00	0.
1	1512	77	.01	.01	.01	41.	*	2	2112	227	.00	.00	.00	0.
1	1524	78	.01	.01	.01	38.	*	2	2124	228	.00	.00	.00	0.
1	1536	79	.01	.01	.01	35.	*	2	2136	229	.00	.00	.00	0.
1	1548	80	.01	.00	.01	31.	*	2	2148	230	.00	.00	.00	0.
1	1600	81	.01	.00	.01	28.	*	2	2200	231	.00	.00	.00	0.
1	1612	82	.01	.00	.01	26.	*	2	2212	232	.00	.00	.00	0.
1	1624	83	.01	.00	.01	23.	*	2	2224	233	.00	.00	.00	0.
1	1636	84	.01	.00	.01	22.	*	2	2236	234	.00	.00	.00	0.
1	1648	85	.01	.00	.00	20.	*	2	2248	235	.00	.00	.00	0.
1	1700	86	.01	.00	.00	19.	*	2	2300	236	.00	.00	.00	0.
1	1712	87	.01	.00	.00	18.	*	2	2312	237	.00	.00	.00	0.
1	1724	88	.01	.00	.00	17.	*	2	2324	238	.00	.00	.00	0.
1	1736	89	.01	.00	.00	16.	*	2	2336	239	.00	.00	.00	0.
1	1748	90	.01	.00	.00	15.	*	2	2348	240	.00	.00	.00	0.
1	1800	91	.01	.00	.00	15.	*	3	0000	241	.00	.00	.00	0.
1	1812	92	.01	.00	.01	14.	*	3	0012	242	.00	.00	.00	0.
1	1824	93	.01	.00	.01	14.	*	3	0024	243	.00	.00	.00	0.
1	1836	94	.01	.00	.01	14.	*	3	0036	244	.00	.00	.00	0.
1	1848	95	.01	.00	.00	14.	*	3	0048	245	.00	.00	.00	0.
1	1900	96	.01	.00	.00	14.	*	3	0100	246	.00	.00	.00	0.
1	1912	97	.01	.00	.00	14.	*	3	0112	247	.00	.00	.00	0.
1	1924	98	.01	.00	.00	14.	*	3	0124	248	.00	.00	.00	0.
1	1936	99	.01	.00	.00	14.	*	3	0136	249	.00	.00	.00	0.
1	1948	100	.01	.00	.00	14.	*	3	0148	250	.00	.00	.00	0.
1	2000	101	.01	.00	.00	14.	*	3	0200	251	.00	.00	.00	0.
1	2012	102	.01	.00	.00	14.	*	3	0212	252	.00	.00	.00	0.
1	2024	103	.01	.00	.00	14.	*	3	0224	253	.00	.00	.00	0.
1	2036	104	.01	.00	.00	14.	*	3	0236	254	.00	.00	.00	0.

1	2048	105	.01	.00	.00	13.	*	3	0248	255	.00	.00	.00	0.
1	2100	106	.01	.00	.00	13.	*	3	0300	256	.00	.00	.00	0.
1	2112	107	.01	.00	.00	13.	*	3	0312	257	.00	.00	.00	0.
1	2124	108	.01	.00	.00	13.	*	3	0324	258	.00	.00	.00	0.
1	2136	109	.01	.00	.00	13.	*	3	0336	259	.00	.00	.00	0.
1	2148	110	.01	.00	.00	12.	*	3	0348	260	.00	.00	.00	0.
1	2200	111	.01	.00	.00	12.	*	3	0400	261	.00	.00	.00	0.
1	2212	112	.01	.00	.00	12.	*	3	0412	262	.00	.00	.00	0.
1	2224	113	.01	.00	.00	12.	*	3	0424	263	.00	.00	.00	0.
1	2236	114	.01	.00	.00	12.	*	3	0436	264	.00	.00	.00	0.
1	2248	115	.01	.00	.00	11.	*	3	0448	265	.00	.00	.00	0.
1	2300	116	.01	.00	.00	11.	*	3	0500	266	.00	.00	.00	0.
1	2312	117	.01	.00	.00	11.	*	3	0512	267	.00	.00	.00	0.
1	2324	118	.01	.00	.00	11.	*	3	0524	268	.00	.00	.00	0.
1	2336	119	.01	.00	.00	11.	*	3	0536	269	.00	.00	.00	0.
1	2348	120	.01	.00	.00	11.	*	3	0548	270	.00	.00	.00	0.
2	0000	121	.01	.00	.00	10.	*	3	0600	271	.00	.00	.00	0.
2	0012	122	.00	.00	.00	10.	*	3	0612	272	.00	.00	.00	0.
2	0024	123	.00	.00	.00	10.	*	3	0624	273	.00	.00	.00	0.
2	0036	124	.00	.00	.00	9.	*	3	0636	274	.00	.00	.00	0.
2	0048	125	.00	.00	.00	7.	*	3	0648	275	.00	.00	.00	0.
2	0100	126	.00	.00	.00	6.	*	3	0700	276	.00	.00	.00	0.
2	0112	127	.00	.00	.00	4.	*	3	0712	277	.00	.00	.00	0.
2	0124	128	.00	.00	.00	3.	*	3	0724	278	.00	.00	.00	0.
2	0136	129	.00	.00	.00	2.	*	3	0736	279	.00	.00	.00	0.
2	0148	130	.00	.00	.00	2.	*	3	0748	280	.00	.00	.00	0.
2	0200	131	.00	.00	.00	1.	*	3	0800	281	.00	.00	.00	0.
2	0212	132	.00	.00	.00	1.	*	3	0812	282	.00	.00	.00	0.
2	0224	133	.00	.00	.00	1.	*	3	0824	283	.00	.00	.00	0.
2	0236	134	.00	.00	.00	0.	*	3	0836	284	.00	.00	.00	0.
2	0248	135	.00	.00	.00	0.	*	3	0848	285	.00	.00	.00	0.
2	0300	136	.00	.00	.00	0.	*	3	0900	286	.00	.00	.00	0.
2	0312	137	.00	.00	.00	0.	*	3	0912	287	.00	.00	.00	0.
2	0324	138	.00	.00	.00	0.	*	3	0924	288	.00	.00	.00	0.
2	0336	139	.00	.00	.00	0.	*	3	0936	289	.00	.00	.00	0.
2	0348	140	.00	.00	.00	0.	*	3	0948	290	.00	.00	.00	0.
2	0400	141	.00	.00	.00	0.	*	3	1000	291	.00	.00	.00	0.
2	0412	142	.00	.00	.00	0.	*	3	1012	292	.00	.00	.00	0.
2	0424	143	.00	.00	.00	0.	*	3	1024	293	.00	.00	.00	0.
2	0436	144	.00	.00	.00	0.	*	3	1036	294	.00	.00	.00	0.
2	0448	145	.00	.00	.00	0.	*	3	1048	295	.00	.00	.00	0.
2	0500	146	.00	.00	.00	0.	*	3	1100	296	.00	.00	.00	0.
2	0512	147	.00	.00	.00	0.	*	3	1112	297	.00	.00	.00	0.
2	0524	148	.00	.00	.00	0.	*	3	1124	298	.00	.00	.00	0.
2	0536	149	.00	.00	.00	0.	*	3	1136	299	.00	.00	.00	0.
2	0548	150	.00	.00	.00	0.	*	3	1148	300	.00	.00	.00	0.
							*							

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TOTAL RAINFALL = 3.55, TOTAL LOSS = 3.02, TOTAL EXCESS = .52

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
82.	13.60	(CFS)	38.	13.	5.	5.
		(INCHES)	.385	.525	.525	.525
		(AC-FT)	19.	26.	26.	26.

CUMULATIVE AREA = .92 SQ MI

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          *            *
111 KK    *    COPT15  *
          *            *
          **************
```

Combine local runoff with SRPP track overflows at Arizona Elliot

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113 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION COPT15

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
83.	13.60	(CFS)	47.	28.	16.	16.
		(INCHES)	.309	.722	1.052	1.052
		(AC-FT)	23.	55.	80.	80.

CUMULATIVE AREA = 1.42 SQ MI

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          *            *
114 KK    *    ROPT15  *
          *            *
          **************
```

Route optimized single basin to Alma School and Elliot

HYDROGRAPH ROUTING DATA

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116 RK          KINEMATIC WAVE STREAM ROUTING
                          L       5280.  CHANNEL LENGTH
                          S       .0008  SLOPE
                          N        .016  CHANNEL ROUGHNESS COEFFICIENT
                         CA         .00  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD         .00  BOTTOM WIDTH OR DIAMETER
                          Z       25.00  SIDE SLOPE
                      DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.57	1.33	1.67	264.00	82.83	847.87	1.04	2.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= 79.689 EXCESS= .000 OUTFLOW= 78.805 BASIN STORAGE= .873 PERCENT ERROR= .013

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.57	1.33	12.00	81.51	852.00	1.04

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

HYDROGRAPH AT STATION ROPT15

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
82.	14.20	(CFS)	47.	27.	16.	16.
		(INCHES)	.306	.719	1.039	1.039
		(AC-FT)	23.	54.	79.	79.

CUMULATIVE AREA = 1.42 SQ MI

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          **************
          *            *
117 KK    *     OPT9   *
          *            *
          **************
```

Optimized single basin for section 9 <EAS>

SUBBASIN RUNOFF DATA

119 BA SUBBASIN CHARACTERISTICS

TAREA .44 SUBBASIN AREA

PRECIPITATION DATA

107 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 40.00

120 LS SCS LOSS RATE

STRTL 2.11 INITIAL ABSTRACTION

CRVNBR 75.80 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

121 UD SCS DIMENSIONLESS UNITGRAPH

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                    TLAG        1.35  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                            36 END-OF-PERIOD ORDINATES
            8.      25.      49.      83.     118.     139.     146.     145.     132.     117.
           97.      74.      58.      46.      37.      30.      24.      19.      15.      12.
           10.       8.       6.       5.       4.       3.       3.       2.       2.       1.
            1.       1.       1.       0.       0.       0.

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

                     HYDROGRAPH AT STATION     OPT9

  TOTAL RAINFALL =    3.55, TOTAL LOSS =    3.10, TOTAL EXCESS =     .45

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    28.     14.00        (CFS)      15.         5.          2.          2.
                       (INCHES)     .321       .447        .447        .447
                        (AC-FT)      8.        11.         11.         11.

                     CUMULATIVE AREA =     .44 SQ MI


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


          **************
          *            *
122 KK    *     COPT9  *
          *            *
          **************
                          Combine sect. 15 and 9 optimized hydrographs

124 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                     HYDROGRAPH AT STATION    COPT9

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
   109.     14.00        (CFS)      61.        32.         18.         18.
                       (INCHES)     .306       .648        .899        .899
                        (AC-FT)      30.        64.         89.         89.

                     CUMULATIVE AREA =    1.86 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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          *            *
125 KK    *     ROPT9  *
          *            *
          **************
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Route combined optimized basins to Elliot and Dobson

HYDROGRAPH ROUTING DATA

127 RK KINEMATIC WAVE STREAM ROUTING

L	5280.	CHANNEL LENGTH
S	.0011	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	50.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.53	1.33	1.94	310.59	109.04	873.23	.89	2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= 89.220 EXCESS= .000 OUTFLOW= 88.197 BASIN STORAGE= .973 PERCENT ERROR= .056

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.53	1.33	12.00	109.04	876.00	.89

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

HYDROGRAPH AT STATION ROPT9

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
109.	14.60	(CFS)	61.	32.	18.	18.
		(INCHES)	.305	.648	.890	.890
		(AC-FT)	30.	64.	88.	88.

CUMULATIVE AREA = 1.86 SQ MI

*** ***

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          *            *
128 KK    *     OPT8   *
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          *            *
          **************
                          Optimized single basin for section 8 <ELD>

             SUBBASIN RUNOFF DATA

130 BA          SUBBASIN CHARACTERISTICS
                     TAREA          .49  SUBBASIN AREA

                PRECIPITATION DATA

107 PH                                DEPTHS FOR   1-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
                  .71    1.39    2.44   2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

131 LS          SCS LOSS RATE
                     STRTL         1.90  INITIAL ABSTRACTION
                    CRVNBR        75.00  CURVE NUMBER
                     RTIMP          .00  PERCENT IMPERVIOUS AREA

132 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         1.66  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                            43 END-OF-PERIOD ORDINATES
                  5.      17.      32.      53.      81.     106.     124.     133.     134.     130.
                120.     109.      94.      77.      61.      51.      42.      35.      30.      25.
                 20.      17.      14.      12.      10.       8.       7.       6.       5.       4.
                  3.       3.       2.       2.       2.       1.       1.       1.       1.       1.
                  0.       0.       0.

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

                      HYDROGRAPH AT STATION     OPT8

   TOTAL RAINFALL =    3.55, TOTAL LOSS =    3.00, TOTAL EXCESS =     .55

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR      24-HR      72-HR    59.80-HR
    37.      14.40        (CFS)      21.         7.         3.         3.
                         (INCHES)    .399       .546       .546       .546
                          (AC-FT)    10.        14.        14.        14.

                      CUMULATIVE AREA =     .49 SQ MI


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


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          *            *
133 KK    *     COPT8  *
          *            *
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**************
                    Combine sect. 15,9 and 8 optimized hydrographs

135 HC        HYDROGRAPH COMBINATION
                 ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                   ***

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

                  HYDROGRAPH AT STATION    COPT8

PEAK FLOW    TIME                      MAXIMUM AVERAGE FLOW
 (CFS)       (HR)              6-HR      24-HR      72-HR     59.80-HR
  145.      14.60     (CFS)     79.        39.        21.        21.
                    (INCHES)   .313       .615       .818       .818
                     (AC-FT)    39.        77.       103.       103.

                  CUMULATIVE AREA =    2.35 SQ MI


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


          **************
          *            *
136 KK    *     ROPT8  *
          *            *
          **************
                    Route optimized combined basins to Price Road basin "E"

            HYDROGRAPH ROUTING DATA

138 RK        KINEMATIC WAVE STREAM ROUTING
                     L      5280.  CHANNEL LENGTH
                     S      .0011  SLOPE
                     N       .016  CHANNEL ROUGHNESS COEFFICIENT
                    CA        .00  CONTRIBUTING AREA
                 SHAPE       TRAP  CHANNEL SHAPE
                    WD        .00  BOTTOM WIDTH OR DIAMETER
                     Z      50.00  SIDE SLOPE
                 DXMIN          2  MINIMUM NUMBER OF DX INTERVALS

                                                   ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
              ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK               CELERITY
                                             (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

                 3         .53     1.33      1.92    330.00    145.17   904.77       .81      2.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=  102.571  EXCESS=     .000 OUTFLOW=  101.543 BASIN STORAGE=     .995 PERCENT ERROR=     .033

                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
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```
                    3        .53      1.33      12.00            143.26    900.00       .81

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

                     HYDROGRAPH AT STATION    ROPT8

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
   143.      15.00       (CFS)     79.         39.         21.         21.
                       (INCHES)   .311        .614        .809        .809
                        (AC-FT)    39.         77.        101.        101.

                     CUMULATIVE AREA =    2.35 SQ MI


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


          **************
          *            *
139 KK    *      OPT7  *
          *            *
          **************
                          Optimized single basin for section 7 <PEL>

            SUBBASIN RUNOFF DATA

141 BA        SUBBASIN CHARACTERISTICS
                   TAREA         .56  SUBBASIN AREA

              PRECIPITATION DATA

107 PH                              DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                 STORM AREA =   40.00

142 LS        SCS LOSS RATE
                   STRTL        2.20  INITIAL ABSTRACTION
                  CRVNBR       89.70  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

143 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .32  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                            10 END-OF-PERIOD ORDINATES
            280.     645.     487.     212.      99.      46.      21.      10.       5.       2.

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

                     HYDROGRAPH AT STATION     OPT7
```

TOTAL RAINFALL = 3.55, TOTAL LOSS = 2.82, TOTAL EXCESS = .73

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
130.	12.80	(CFS)	34.	11.	4.	4.
		(INCHES)	.565	.729	.729	.729
		(AC-FT)	17.	22.	22.	22.

CUMULATIVE AREA = .56 SQ MI

*** ***

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          *            *
144 KK    *     COPT7  *
          *            *
          **************
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Combine sect. 15,9,8 and 7 optimized hydrographs at Price Road basin

146 KO OUTPUT CONTROL VARIABLES

IPRNT	1	PRINT CONTROL
IPLOT	2	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

147 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

****

HYDROGRAPH AT STATION COPT7
SUM OF 2 HYDROGRAPHS

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		1500	76	169.	2		0600	151	18.	2		2100	226	15.
1		0012	2	0.	1		1512	77	166.	2		0612	152	17.	2		2112	227	15.
1		0024	3	0.	1		1524	78	157.	2		0624	153	17.	2		2124	228	15.
1		0036	4	0.	1		1536	79	146.	2		0636	154	17.	2		2136	229	15.
1		0048	5	0.	1		1548	80	137.	2		0648	155	17.	2		2148	230	15.
1		0100	6	0.	1		1600	81	129.	2		0700	156	17.	2		2200	231	15.
1		0112	7	0.	1		1612	82	122.	2		0712	157	17.	2		2212	232	15.
1		0124	8	0.	1		1624	83	115.	2		0724	158	17.	2		2224	233	15.
1		0136	9	0.	1		1636	84	108.	2		0736	159	17.	2		2236	234	15.
1		0148	10	0.	1		1648	85	102.	2		0748	160	17.	2		2248	235	14.
1		0200	11	0.	1		1700	86	96.	2		0800	161	17.	2		2300	236	14.
1		0212	12	0.	1		1712	87	91.	2		0812	162	17.	2		2312	237	14.
1		0224	13	0.	1		1724	88	86.	2		0824	163	17.	2		2324	238	14.
1		0236	14	0.	1		1736	89	81.	2		0836	164	17.	2		2336	239	14.
1		0248	15	0.	1		1748	90	76.	2		0848	165	17.	2		2348	240	14.
1		0300	16	0.	1		1800	91	72.	2		0900	166	17.	3		0000	241	14.
1		0312	17	0.	1		1812	92	68.	2		0912	167	17.	3		0012	242	14.

1	0324	18	0.	*	1	1824	93	66.	*	2	0924	168	17.	*	3	0024	243	14.
1	0336	19	0.	*	1	1836	94	64.	*	2	0936	169	17.	*	3	0036	244	14.
1	0348	20	0.	*	1	1848	95	62.	*	2	0948	170	17.	*	3	0048	245	14.
1	0400	21	0.	*	1	1900	96	60.	*	2	1000	171	17.	*	3	0100	246	14.
1	0412	22	0.	*	1	1912	97	58.	*	2	1012	172	17.	*	3	0112	247	14.
1	0424	23	0.	*	1	1924	98	56.	*	2	1024	173	17.	*	3	0124	248	14.
1	0436	24	0.	*	1	1936	99	55.	*	2	1036	174	17.	*	3	0136	249	14.
1	0448	25	0.	*	1	1948	100	54.	*	2	1048	175	17.	*	3	0148	250	14.
1	0500	26	0.	*	1	2000	101	53.	*	2	1100	176	17.	*	3	0200	251	14.
1	0512	27	0.	*	1	2012	102	52.	*	2	1112	177	17.	*	3	0212	252	14.
1	0524	28	0.	*	1	2024	103	52.	*	2	1124	178	17.	*	3	0224	253	14.
1	0536	29	0.	*	1	2036	104	52.	*	2	1136	179	17.	*	3	0236	254	13.
1	0548	30	0.	*	1	2048	105	51.	*	2	1148	180	17.	*	3	0248	255	13.
1	0600	31	0.	*	1	2100	106	51.	*	2	1200	181	16.	*	3	0300	256	13.
1	0612	32	0.	*	1	2112	107	51.	*	2	1212	182	16.	*	3	0312	257	13.
1	0624	33	0.	*	1	2124	108	51.	*	2	1224	183	16.	*	3	0324	258	13.
1	0636	34	0.	*	1	2136	109	51.	*	2	1236	184	16.	*	3	0336	259	13.
1	0648	35	0.	*	1	2148	110	51.	*	2	1248	185	16.	*	3	0348	260	13.
1	0700	36	0.	*	1	2200	111	51.	*	2	1300	186	16.	*	3	0400	261	13.
1	0712	37	0.	*	1	2212	112	50.	*	2	1312	187	16.	*	3	0412	262	13.
1	0724	38	0.	*	1	2224	113	50.	*	2	1324	188	16.	*	3	0424	263	13.
1	0736	39	0.	*	1	2236	114	49.	*	2	1336	189	16.	*	3	0436	264	13.
1	0748	40	0.	*	1	2248	115	49.	*	2	1348	190	16.	*	3	0448	265	13.
1	0800	41	0.	*	1	2300	116	48.	*	2	1400	191	16.	*	3	0500	266	12.
1	0812	42	0.	*	1	2312	117	48.	*	2	1412	192	16.	*	3	0512	267	12.
1	0824	43	0.	*	1	2324	118	48.	*	2	1424	193	16.	*	3	0524	268	12.
1	0836	44	0.	*	1	2336	119	47.	*	2	1436	194	16.	*	3	0536	269	12.
1	0848	45	0.	*	1	2348	120	47.	*	2	1448	195	16.	*	3	0548	270	12.
1	0900	46	0.	*	2	0000	121	46.	*	2	1500	196	16.	*	3	0600	271	12.
1	0912	47	0.	*	2	0012	122	45.	*	2	1512	197	16.	*	3	0612	272	12.
1	0924	48	0.	*	2	0024	123	42.	*	2	1524	198	16.	*	3	0624	273	12.
1	0936	49	0.	*	2	0036	124	40.	*	2	1536	199	16.	*	3	0636	274	12.
1	0948	50	0.	*	2	0048	125	39.	*	2	1548	200	16.	*	3	0648	275	12.
1	1000	51	0.	*	2	0100	126	38.	*	2	1600	201	16.	*	3	0700	276	12.
1	1012	52	0.	*	2	0112	127	37.	*	2	1612	202	16.	*	3	0712	277	12.
1	1024	53	0.	*	2	0124	128	37.	*	2	1624	203	16.	*	3	0724	278	11.
1	1036	54	0.	*	2	0136	129	36.	*	2	1636	204	16.	*	3	0736	279	11.
1	1048	55	0.	*	2	0148	130	36.	*	2	1648	205	16.	*	3	0748	280	11.
1	1100	56	0.	*	2	0200	131	35.	*	2	1700	206	16.	*	3	0800	281	11.
1	1112	57	0.	*	2	0212	132	34.	*	2	1712	207	16.	*	3	0812	282	11.
1	1124	58	0.	*	2	0224	133	33.	*	2	1724	208	15.	*	3	0824	283	11.
1	1136	59	0.	*	2	0236	134	32.	*	2	1736	209	15.	*	3	0836	284	11.
1	1148	60	0.	*	2	0248	135	30.	*	2	1748	210	15.	*	3	0848	285	11.
1	1200	61	0.	*	2	0300	136	28.	*	2	1800	211	15.	*	3	0900	286	11.
1	1212	62	5.	*	2	0312	137	26.	*	2	1812	212	15.	*	3	0912	287	11.
1	1224	63	38.	*	2	0324	138	25.	*	2	1824	213	15.	*	3	0924	288	11.
1	1236	64	100.	*	2	0336	139	23.	*	2	1836	214	15.	*	3	0936	289	11.
1	1248	65	130.	*	2	0348	140	22.	*	2	1848	215	15.	*	3	0948	290	11.
1	1300	66	107.	*	2	0400	141	21.	*	2	1900	216	15.	*	3	1000	291	11.
1	1312	67	79.	*	2	0412	142	20.	*	2	1912	217	15.	*	3	1012	292	10.
1	1324	68	63.	*	2	0424	143	19.	*	2	1924	218	15.	*	3	1024	293	10.
1	1336	69	52.	*	2	0436	144	19.	*	2	1936	219	15.	*	3	1036	294	10.
1	1348	70	45.	*	2	0448	145	19.	*	2	1948	220	15.	*	3	1048	295	10.
1	1400	71	53.	*	2	0500	146	18.	*	2	2000	221	15.	*	3	1100	296	10.
1	1412	72	59.	*	2	0512	147	18.	*	2	2012	222	15.	*	3	1112	297	10.
1	1424	73	62.	*	2	0524	148	18.	*	2	2024	223	15.	*	3	1124	298	10.
1	1436	74	78.	*	2	0536	149	18.	*	2	2036	224	15.	*	3	1136	299	10.
1	1448	75	155.	*	2	0548	150	18.	*	2	2048	225	15.	*	3	1148	300	10.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
169.	15.00	(CFS)	99.	49.	25.	25.
		(INCHES)	.315	.621	.794	.794
		(AC-FT)	49.	96.	123.	123.

CUMULATIVE AREA = 2.91 SQ MI

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

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          *            *
148 KK    *    OPT16   *
          *            *
          **************
                                Optimized single basin for section 16 <WAS>

             SUBBASIN RUNOFF DATA

150 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .88  SUBBASIN AREA

                PRECIPITATION DATA

107 PH                                  DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                      STORM AREA =   40.00

151 LS          SCS LOSS RATE
                      STRTL         2.64  INITIAL ABSTRACTION
                     CRVNBR        85.00  CURVE NUMBER
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

152 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG          .85  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                          23 END-OF-PERIOD ORDINATES
             49.     154.     318.     428.     446.     397.     316.     213.     149.     108.
             77.      55.      39.      27.      19.      14.      10.       7.       5.       4.
              3.       2.       1.

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

                     HYDROGRAPH AT STATION    OPT16

   TOTAL RAINFALL =    3.55, TOTAL LOSS =    3.24, TOTAL EXCESS =     .31

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
 (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
   29.      14.20       (CFS)       19.         7.          3.          3.
                      (INCHES)     .197        .309        .309        .309
                       (AC-FT)       9.         15.         15.         15.

                      CUMULATIVE AREA =     .88 SQ MI
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          *            *
153 KK    *   ROPT16   *
          *            *
          **************
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Route optimized single basin to Dobson and Warner

HYDROGRAPH ROUTING DATA

155 RK KINEMATIC WAVE STREAM ROUTING

L	5280.	CHANNEL LENGTH
S	.0008	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.57	1.33	2.90	352.00	28.86	894.56	.31	2.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= 14.524 EXCESS= .000 OUTFLOW= 14.512 BASIN STORAGE= .000 PERCENT ERROR= .087

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.57	1.33	12.00	28.78	900.00	.31

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

HYDROGRAPH AT STATION ROPT16

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
29.	15.00	(CFS)	19.	7.	3.	3.
		(INCHES)	.196	.309	.309	.309
		(AC-FT)	9.	15.	15.	15.

CUMULATIVE AREA = .88 SQ MI

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          *            *
156 KK    *    OPT17   *
          *            *
          **************
                          Optimized single basin for section 17 <DM>

            SUBBASIN RUNOFF DATA

158 BA        SUBBASIN CHARACTERISTICS
                    TAREA        1.00  SUBBASIN AREA

              PRECIPITATION DATA

107 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

159 LS        SCS LOSS RATE
                    STRTL        2.45  INITIAL ABSTRACTION
                   CRVNBR       82.30  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

160 UD        SCS DIMENSIONLESS UNITGRAPH
                     TLAG        1.14  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                           30 END-OF-PERIOD ORDINATES
            28.      85.     173.     285.     364.     388.     379.     338.     284.     213.
           159.     122.      95.      74.      56.      43.      33.      26.      20.      15.
            12.       9.       7.       5.       4.       3.       3.       2.       1.       1.

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

                     HYDROGRAPH AT STATION    OPT17

   TOTAL RAINFALL =    3.55, TOTAL LOSS =    3.18, TOTAL EXCESS =     .37

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR       24-HR       72-HR     59.80-HR
    45.     14.20       (CFS)      27.         10.          4.          4.
                       (INCHES)    .249        .372        .372        .372
                       (AC-FT)     13.         20.         20.         20.

                      CUMULATIVE AREA =    1.00 SQ MI


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          *            *
161 KK    *   ROPT17   *
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*            *
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Route optimized section 17 hydrograph to Dobson and Warner

HYDROGRAPH ROUTING DATA

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163 RK        KINEMATIC WAVE STREAM ROUTING
                       L      2640.  CHANNEL LENGTH
                       S      .0010  SLOPE
                       N       .016  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .00  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD        .00  BOTTOM WIDTH OR DIAMETER
                       Z      50.00  SIDE SLOPE
                   DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.50	1.33	2.67	330.00	44.49	871.30	.37	2.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= 19.845 EXCESS= .000 OUTFLOW= 19.826 BASIN STORAGE= .000 PERCENT ERROR= .096

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.50	1.33	12.00	44.26	864.00	.37

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

HYDROGRAPH AT STATION ROPT17

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
44.	14.40	(CFS)	27.	10.	4.	4.
		(INCHES)	.248	.372	.372	.372
		(AC-FT)	13.	20.	20.	20.

CUMULATIVE AREA = 1.00 SQ MI

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             **************
             *            *
164 KK       *    COPT17  *
             *            *
             **************
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Combine sect. 16 and 17 optimized hydrographs at Dobson and Warner

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166 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION   COPT17

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
    72.      14.60       (CFS)      44.         17.          7.          7.
                       (INCHES)    .220        .342        .342        .342
                        (AC-FT)     22.         34.         34.         34.

                       CUMULATIVE AREA =    1.88 SQ MI


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


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          *            *
167 KK    *     OPT20  *
          *            *
          **************
                          Optimized single basin for section 20 <WD>

            SUBBASIN RUNOFF DATA

169 BA        SUBBASIN CHARACTERISTICS
                     TAREA         .74  SUBBASIN AREA

              PRECIPITATION DATA

107 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

170 LS        SCS LOSS RATE
                     STRTL        2.53  INITIAL ABSTRACTION
                    CRVNBR       90.90  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

171 UD        SCS DIMENSIONLESS UNITGRAPH
                      TLAG         .29  LAG

                                                          ***

                                                     UNIT HYDROGRAPH
                                                 9 END-OF-PERIOD ORDINATES
            457.      921.      585.      241.      105.       45.       20.        9.        4.

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

HYDROGRAPH AT STATION OPT20

TOTAL RAINFALL = 3.55, TOTAL LOSS = 3.04, TOTAL EXCESS = .51

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	59.80-HR
73.	13.00	(CFS)	29.	10.	4.	4.
		(INCHES)	.366	.515	.515	.515
		(AC-FT)	14.	20.	20.	20.

CUMULATIVE AREA = .74 SQ MI

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          **************
          *            *
172 KK    *   COPT20   *
          *            *
          **************
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Combine sect. 16,17 and 20 optimized hydrographs at Dobson and Warner

```
174 HC        HYDROGRAPH COMBINATION
                   ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION COPT20

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	59.80-HR
106.	14.40	(CFS)	70.	28.	11.	11.
		(INCHES)	.249	.391	.391	.391
		(AC-FT)	35.	55.	55.	55.

CUMULATIVE AREA = 2.62 SQ MI

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          *            *
175 KK    *   ROPT20   *
          *            *
          **************
```

Route sect 16,17 and 20 combined optimized hydrographs to Price Road

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177 KO        OUTPUT CONTROL VARIABLES
                   IPRNT          1  PRINT CONTROL
                   IPLOT          2  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE
```

HYDROGRAPH ROUTING DATA

178 RK KINEMATIC WAVE STREAM ROUTING

L	5280.	CHANNEL LENGTH
S	.0019	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	50.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.70	1.33	2.08	406.15	105.82	889.09	.39	3.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= 54.632 EXCESS= .000 OUTFLOW= 54.594 BASIN STORAGE= .000 PERCENT ERROR= .069

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.70	1.33	12.00	105.60	900.00	.39

****

HYDROGRAPH AT STATION ROPT20

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		1500	76	106.	2		0600	151	1.	2		2100	226	0.
1		0012	2	0.	1		1512	77	103.	2		0612	152	1.	2		2112	227	0.
1		0024	3	0.	1		1524	78	100.	2		0624	153	1.	2		2124	228	0.
1		0036	4	0.	1		1536	79	95.	2		0636	154	0.	2		2136	229	0.
1		0048	5	0.	1		1548	80	89.	2		0648	155	0.	2		2148	230	0.
1		0100	6	0.	1		1600	81	84.	2		0700	156	0.	2		2200	231	0.
1		0112	7	0.	1		1612	82	79.	2		0712	157	0.	2		2212	232	0.
1		0124	8	0.	1		1624	83	75.	2		0724	158	0.	2		2224	233	0.
1		0136	9	0.	1		1636	84	71.	2		0736	159	0.	2		2236	234	0.
1		0148	10	0.	1		1648	85	67.	2		0748	160	0.	2		2248	235	0.
1		0200	11	0.	1		1700	86	63.	2		0800	161	0.	2		2300	236	0.
1		0212	12	0.	1		1712	87	59.	2		0812	162	0.	2		2312	237	0.
1		0224	13	0.	1		1724	88	55.	2		0824	163	0.	2		2324	238	0.
1		0236	14	0.	1		1736	89	52.	2		0836	164	0.	2		2336	239	0.
1		0248	15	0.	1		1748	90	49.	2		0848	165	0.	2		2348	240	0.
1		0300	16	0.	1		1800	91	47.	2		0900	166	0.	3		0000	241	0.
1		0312	17	0.	1		1812	92	45.	2		0912	167	0.	3		0012	242	0.
1		0324	18	0.	1		1824	93	43.	2		0924	168	0.	3		0024	243	0.
1		0336	19	0.	1		1836	94	41.	2		0936	169	0.	3		0036	244	0.
1		0348	20	0.	1		1848	95	41.	2		0948	170	0.	3		0048	245	0.
1		0400	21	0.	1		1900	96	41.	2		1000	171	0.	3		0100	246	0.

1	0412	22	0.	*	1	1912	97	40.	*	2	1012	172	0.	*	3	0112	247	0.
1	0424	23	0.	*	1	1924	98	39.	*	2	1024	173	0.	*	3	0124	248	0.
1	0436	24	0.	*	1	1936	99	39.	*	2	1036	174	0.	*	3	0136	249	0.
1	0448	25	0.	*	1	1948	100	38.	*	2	1048	175	0.	*	3	0148	250	0.
1	0500	26	0.	*	1	2000	101	38.	*	2	1100	176	0.	*	3	0200	251	0.
1	0512	27	0.	*	1	2012	102	38.	*	2	1112	177	0.	*	3	0212	252	0.
1	0524	28	0.	*	1	2024	103	38.	*	2	1124	178	0.	*	3	0224	253	0.
1	0536	29	0.	*	1	2036	104	38.	*	2	1136	179	0.	*	3	0236	254	0.
1	0548	30	0.	*	1	2048	105	38.	*	2	1148	180	0.	*	3	0248	255	0.
1	0600	31	0.	*	1	2100	106	38.	*	2	1200	181	0.	*	3	0300	256	0.
1	0612	32	0.	*	1	2112	107	37.	*	2	1212	182	0.	*	3	0312	257	0.
1	0624	33	0.	*	1	2124	108	37.	*	2	1224	183	0.	*	3	0324	258	0.
1	0636	34	0.	*	1	2136	109	36.	*	2	1236	184	0.	*	3	0336	259	0.
1	0648	35	0.	*	1	2148	110	36.	*	2	1248	185	0.	*	3	0348	260	0.
1	0700	36	0.	*	1	2200	111	35.	*	2	1300	186	0.	*	3	0400	261	0.
1	0712	37	0.	*	1	2212	112	35.	*	2	1312	187	0.	*	3	0412	262	0.
1	0724	38	0.	*	1	2224	113	34.	*	2	1324	188	0.	*	3	0424	263	0.
1	0736	39	0.	*	1	2236	114	34.	*	2	1336	189	0.	*	3	0436	264	0.
1	0748	40	0.	*	1	2248	115	33.	*	2	1348	190	0.	*	3	0448	265	0.
1	0800	41	0.	*	1	2300	116	33.	*	2	1400	191	0.	*	3	0500	266	0.
1	0812	42	0.	*	1	2312	117	33.	*	2	1412	192	0.	*	3	0512	267	0.
1	0824	43	0.	*	1	2324	118	32.	*	2	1424	193	0.	*	3	0524	268	0.
1	0836	44	0.	*	1	2336	119	32.	*	2	1436	194	0.	*	3	0536	269	0.
1	0848	45	0.	*	1	2348	120	31.	*	2	1448	195	0.	*	3	0548	270	0.
1	0900	46	0.	*	2	0000	121	31.	*	2	1500	196	0.	*	3	0600	271	0.
1	0912	47	0.	*	2	0012	122	30.	*	2	1512	197	0.	*	3	0612	272	0.
1	0924	48	0.	*	2	0024	123	30.	*	2	1524	198	0.	*	3	0624	273	0.
1	0936	49	0.	*	2	0036	124	29.	*	2	1536	199	0.	*	3	0636	274	0.
1	0948	50	0.	*	2	0048	125	27.	*	2	1548	200	0.	*	3	0648	275	0.
1	1000	51	0.	*	2	0100	126	24.	*	2	1600	201	0.	*	3	0700	276	0.
1	1012	52	0.	*	2	0112	127	21.	*	2	1612	202	0.	*	3	0712	277	0.
1	1024	53	0.	*	2	0124	128	20.	*	2	1624	203	0.	*	3	0724	278	0.
1	1036	54	0.	*	2	0136	129	19.	*	2	1636	204	0.	*	3	0736	279	0.
1	1048	55	0.	*	2	0148	130	17.	*	2	1648	205	0.	*	3	0748	280	0.
1	1100	56	0.	*	2	0200	131	16.	*	2	1700	206	0.	*	3	0800	281	0.
1	1112	57	0.	*	2	0212	132	14.	*	2	1712	207	0.	*	3	0812	282	0.
1	1124	58	0.	*	2	0224	133	12.	*	2	1724	208	0.	*	3	0824	283	0.
1	1136	59	0.	*	2	0236	134	11.	*	2	1736	209	0.	*	3	0836	284	0.
1	1148	60	0.	*	2	0248	135	9.	*	2	1748	210	0.	*	3	0848	285	0.
1	1200	61	0.	*	2	0300	136	8.	*	2	1800	211	0.	*	3	0900	286	0.
1	1212	62	0.	*	2	0312	137	6.	*	2	1812	212	0.	*	3	0912	287	0.
1	1224	63	0.	*	2	0324	138	5.	*	2	1824	213	0.	*	3	0924	288	0.
1	1236	64	0.	*	2	0336	139	4.	*	2	1836	214	0.	*	3	0936	289	0.
1	1248	65	0.	*	2	0348	140	4.	*	2	1848	215	0.	*	3	0948	290	0.
1	1300	66	0.	*	2	0400	141	3.	*	2	1900	216	0.	*	3	1000	291	0.
1	1312	67	25.	*	2	0412	142	3.	*	2	1912	217	0.	*	3	1012	292	0.
1	1324	68	72.	*	2	0424	143	2.	*	2	1924	218	0.	*	3	1024	293	0.
1	1336	69	67.	*	2	0436	144	2.	*	2	1936	219	0.	*	3	1036	294	0.
1	1348	70	66.	*	2	0448	145	2.	*	2	1948	220	0.	*	3	1048	295	0.
1	1400	71	71.	*	2	0500	146	1.	*	2	2000	221	0.	*	3	1100	296	0.
1	1412	72	77.	*	2	0512	147	1.	*	2	2012	222	0.	*	3	1112	297	0.
1	1424	73	85.	*	2	0524	148	1.	*	2	2024	223	0.	*	3	1124	298	0.
1	1436	74	100.	*	2	0536	149	1.	*	2	2036	224	0.	*	3	1136	299	0.
1	1448	75	106.	*	2	0548	150	1.	*	2	2048	225	0.	*	3	1148	300	0.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
106.	15.00	(CFS)	69.	27.	11.	11.

(INCHES)	.246	.390	.390	.390
(AC-FT)	34.	55.	55.	55.

CUMULATIVE AREA = 2.62 SQ MI

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

          **************
          *            *
179 KK    *    OPT18   *
          *            *
          **************
                                Optimized single basin for section 18 <PW>

             SUBBASIN RUNOFF DATA

181 BA          SUBBASIN CHARACTERISTICS
                     TAREA          .80  SUBBASIN AREA

                PRECIPITATION DATA

107 PH                                 DEPTHS FOR   1-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
                  .71    1.39    2.44   2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   40.00

182 LS          SCS LOSS RATE
                     STRTL         2.50  INITIAL ABSTRACTION
                    CRVNBR        75.80  CURVE NUMBER
                     RTIMP          .00  PERCENT IMPERVIOUS AREA

183 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG          .44  LAG

                                                      ***

                                                  UNIT HYDROGRAPH
                                             13 END-OF-PERIOD ORDINATES
             196.     617.     702.     499.     256.     143.      77.      42.      23.      13.
               7.       4.       1.

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

                     HYDROGRAPH AT STATION    OPT18

   TOTAL RAINFALL =    3.55, TOTAL LOSS =    3.29, TOTAL EXCESS =     .26

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                  6-HR      24-HR      72-HR    59.80-HR
    31.     13.20       (CFS)      15.         6.         2.         2.
                      (INCHES)    .176       .260       .260       .260
                       (AC-FT)      8.         11.        11.        11.

                     CUMULATIVE AREA =     .80 SQ MI
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*** ***

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          **************
          *            *
184 KK    *   COPT18   *
          *            *
          **************
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Combined hyd. for all areas contributing to Basin "E" at Price Road

```
186 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         60  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        300  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .200  TIME INTERVAL IN HOURS


187 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION COPT18
SUM OF 3 HYDROGRAPHS

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		1500	76	292.	2		0600	151	18.	2		2100	226	15.
1		0012	2	0.	1		1512	77	286.	2		0612	152	18.	2		2112	227	15.
1		0024	3	0.	1		1524	78	272.	2		0624	153	18.	2		2124	228	15.
1		0036	4	0.	1		1536	79	255.	2		0636	154	18.	2		2136	229	15.
1		0048	5	0.	1		1548	80	238.	2		0648	155	18.	2		2148	230	15.
1		0100	6	0.	1		1600	81	224.	2		0700	156	18.	2		2200	231	15.
1		0112	7	0.	1		1612	82	211.	2		0712	157	18.	2		2212	232	15.
1		0124	8	0.	1		1624	83	199.	2		0724	158	17.	2		2224	233	15.
1		0136	9	0.	1		1636	84	188.	2		0736	159	17.	2		2236	234	15.
1		0148	10	0.	1		1648	85	178.	2		0748	160	17.	2		2248	235	14.
1		0200	11	0.	1		1700	86	167.	2		0800	161	17.	2		2300	236	14.
1		0212	12	0.	1		1712	87	158.	2		0812	162	17.	2		2312	237	14.
1		0224	13	0.	1		1724	88	149.	2		0824	163	17.	2		2324	238	14.
1		0236	14	0.	1		1736	89	140.	2		0836	164	17.	2		2336	239	14.
1		0248	15	0.	1		1748	90	132.	2		0848	165	17.	2		2348	240	14.
1		0300	16	0.	1		1800	91	126.	2		0900	166	17.	3		0000	241	14.
1		0312	17	0.	1		1812	92	120.	2		0912	167	17.	3		0012	242	14.
1		0324	18	0.	1		1824	93	116.	2		0924	168	17.	3		0024	243	14.
1		0336	19	0.	1		1836	94	113.	2		0936	169	17.	3		0036	244	14.
1		0348	20	0.	1		1848	95	111.	2		0948	170	17.	3		0048	245	14.
1		0400	21	0.	1		1900	96	109.	2		1000	171	17.	3		0100	246	14.
1		0412	22	0.	1		1912	97	106.	2		1012	172	17.	3		0112	247	14.
1		0424	23	0.	1		1924	98	104.	2		1024	173	17.	3		0124	248	14.
1		0436	24	0.	1		1936	99	102.	2		1036	174	17.	3		0136	249	14.
1		0448	25	0.	1		1948	100	100.	2		1048	175	17.	3		0148	250	14.

1	0500	26	0.	*	1	2000	101	99.	*	2	1100	176	17.	*	3	0200	251	14.
1	0512	27	0.	*	1	2012	102	98.	*	2	1112	177	17.	*	3	0212	252	14.
1	0524	28	0.	*	1	2024	103	98.	*	2	1124	178	17.	*	3	0224	253	14.
1	0536	29	0.	*	1	2036	104	97.	*	2	1136	179	17.	*	3	0236	254	13.
1	0548	30	0.	*	1	2048	105	97.	*	2	1148	180	17.	*	3	0248	255	13.
1	0600	31	0.	*	1	2100	106	96.	*	2	1200	181	16.	*	3	0300	256	13.
1	0612	32	0.	*	1	2112	107	96.	*	2	1212	182	16.	*	3	0312	257	13.
1	0624	33	0.	*	1	2124	108	95.	*	2	1224	183	16.	*	3	0324	258	13.
1	0636	34	0.	*	1	2136	109	95.	*	2	1236	184	16.	*	3	0336	259	13.
1	0648	35	0.	*	1	2148	110	94.	*	2	1248	185	16.	*	3	0348	260	13.
1	0700	36	0.	*	1	2200	111	93.	*	2	1300	186	16.	*	3	0400	261	13.
1	0712	37	0.	*	1	2212	112	92.	*	2	1312	187	16.	*	3	0412	262	13.
1	0724	38	0.	*	1	2224	113	91.	*	2	1324	188	16.	*	3	0424	263	13.
1	0736	39	0.	*	1	2236	114	90.	*	2	1336	189	16.	*	3	0436	264	13.
1	0748	40	0.	*	1	2248	115	89.	*	2	1348	190	16.	*	3	0448	265	13.
1	0800	41	0.	*	1	2300	116	88.	*	2	1400	191	16.	*	3	0500	266	12.
1	0812	42	0.	*	1	2312	117	87.	*	2	1412	192	16.	*	3	0512	267	12.
1	0824	43	0.	*	1	2324	118	86.	*	2	1424	193	16.	*	3	0524	268	12.
1	0836	44	0.	*	1	2336	119	85.	*	2	1436	194	16.	*	3	0536	269	12.
1	0848	45	0.	*	1	2348	120	84.	*	2	1448	195	16.	*	3	0548	270	12.
1	0900	46	0.	*	2	0000	121	83.	*	2	1500	196	16.	*	3	0600	271	12.
1	0912	47	0.	*	2	0012	122	81.	*	2	1512	197	16.	*	3	0612	272	12.
1	0924	48	0.	*	2	0024	123	76.	*	2	1524	198	16.	*	3	0624	273	12.
1	0936	49	0.	*	2	0036	124	71.	*	2	1536	199	16.	*	3	0636	274	12.
1	0948	50	0.	*	2	0048	125	67.	*	2	1548	200	16.	*	3	0648	275	12.
1	1000	51	0.	*	2	0100	126	62.	*	2	1600	201	16.	*	3	0700	276	12.
1	1012	52	0.	*	2	0112	127	59.	*	2	1612	202	16.	*	3	0712	277	12.
1	1024	53	0.	*	2	0124	128	57.	*	2	1624	203	16.	*	3	0724	278	11.
1	1036	54	0.	*	2	0136	129	55.	*	2	1636	204	16.	*	3	0736	279	11.
1	1048	55	0.	*	2	0148	130	53.	*	2	1648	205	16.	*	3	0748	280	11.
1	1100	56	0.	*	2	0200	131	51.	*	2	1700	206	16.	*	3	0800	281	11.
1	1112	57	0.	*	2	0212	132	48.	*	2	1712	207	16.	*	3	0812	282	11.
1	1124	58	0.	*	2	0224	133	45.	*	2	1724	208	15.	*	3	0824	283	11.
1	1136	59	0.	*	2	0236	134	42.	*	2	1736	209	15.	*	3	0836	284	11.
1	1148	60	0.	*	2	0248	135	39.	*	2	1748	210	15.	*	3	0848	285	11.
1	1200	61	0.	*	2	0300	136	36.	*	2	1800	211	15.	*	3	0900	286	11.
1	1212	62	5.	*	2	0312	137	33.	*	2	1812	212	15.	*	3	0912	287	11.
1	1224	63	39.	*	2	0324	138	30.	*	2	1824	213	15.	*	3	0924	288	11.
1	1236	64	108.	*	2	0336	139	27.	*	2	1836	214	15.	*	3	0936	289	11.
1	1248	65	151.	*	2	0348	140	26.	*	2	1848	215	15.	*	3	0948	290	11.
1	1300	66	137.	*	2	0400	141	24.	*	2	1900	216	15.	*	3	1000	291	11.
1	1312	67	135.	*	2	0412	142	23.	*	2	1912	217	15.	*	3	1012	292	10.
1	1324	68	164.	*	2	0424	143	22.	*	2	1924	218	15.	*	3	1024	293	10.
1	1336	69	146.	*	2	0436	144	21.	*	2	1936	219	15.	*	3	1036	294	10.
1	1348	70	136.	*	2	0448	145	20.	*	2	1948	220	15.	*	3	1048	295	10.
1	1400	71	148.	*	2	0500	146	20.	*	2	2000	221	15.	*	3	1100	296	10.
1	1412	72	157.	*	2	0512	147	19.	*	2	2012	222	15.	*	3	1112	297	10.
1	1424	73	168.	*	2	0524	148	19.	*	2	2024	223	15.	*	3	1124	298	10.
1	1436	74	197.	*	2	0536	149	19.	*	2	2036	224	15.	*	3	1136	299	10.
1	1448	75	279.	*	2	0548	150	18.	*	2	2048	225	15.	*	3	1148	300	10.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
292.	15.00	(CFS)	179.	82.	38.	38.
		(INCHES)	.263	.480	.559	.559
		(AC-FT)	89.	162.	189.	189.

CUMULATIVE AREA = 6.33 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	PT1C	17.	26.20	17.	16.	11.	.50		
ROUTED TO	RPT1C	17.	27.00	17.	16.	11.	.50		
HYDROGRAPH AT	OPT15	82.	13.60	38.	13.	5.	.92		
2 COMBINED AT	COPT15	83.	13.60	47.	28.	16.	1.42		
ROUTED TO	ROPT15	82.	14.20	47.	27.	16.	1.42		
HYDROGRAPH AT	OPT9	28.	14.00	15.	5.	2.	.44		
2 COMBINED AT	COPT9	109.	14.00	61.	32.	18.	1.86		
ROUTED TO	ROPT9	109.	14.60	61.	32.	18.	1.86		
HYDROGRAPH AT	OPT8	37.	14.40	21.	7.	3.	.49		
2 COMBINED AT	COPT8	145.	14.60	79.	39.	21.	2.35		
ROUTED TO	ROPT8	143.	15.00	79.	39.	21.	2.35		
HYDROGRAPH AT	OPT7	130.	12.80	34.	11.	4.	.56		
2 COMBINED AT	COPT7	169.	15.00	99.	49.	25.	2.91		
HYDROGRAPH AT	OPT16	29.	14.20	19.	7.	3.	.88		
ROUTED TO	ROPT16	29.	15.00	19.	7.	3.	.88		
HYDROGRAPH AT	OPT17	45.	14.20	27.	10.	4.	1.00		
ROUTED TO	ROPT17	44.	14.40	27.	10.	4.	1.00		
2 COMBINED AT	COPT17	72.	14.60	44.	17.	7.	1.88		
HYDROGRAPH AT	OPT20	73.	13.00	29.	10.	4.	.74		
2 COMBINED AT	COPT20	106.	14.40	70.	28.	11.	2.62		
ROUTED TO	ROPT20	106.	15.00	69.	27.	11.	2.62		
HYDROGRAPH AT	OPT18	31.	13.20	15.	6.	2.	.80		
3 COMBINED AT	COPT18	292.	15.00	179.	82.	38.	6.33		

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RPT1C	3	1.44	17.24	1622.28	2.02	12.00	17.24	1620.00	2.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= 54.824 EXCESS= .000 OUTFLOW= 53.941 BASIN STORAGE= .871 PERCENT ERROR= .022

ROPT15	3	1.67	82.83	847.87	1.04	12.00	81.51	852.00	1.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= 79.689 EXCESS= .000 OUTFLOW= 78.805 BASIN STORAGE= .873 PERCENT ERROR= .013

ROPT9	3	1.94	109.04	873.23	.89	12.00	109.04	876.00	.89

CONTINUITY SUMMARY (AC-FT) - INFLOW= 89.220 EXCESS= .000 OUTFLOW= 88.197 BASIN STORAGE= .973 PERCENT ERROR= .056

ROPT8	3	1.92	145.17	904.77	.81	12.00	143.26	900.00	.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= 102.571 EXCESS= .000 OUTFLOW= 101.543 BASIN STORAGE= .995 PERCENT ERROR= .033

ROPT16	3	2.90	28.86	894.56	.31	12.00	28.78	900.00	.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= 14.524 EXCESS= .000 OUTFLOW= 14.512 BASIN STORAGE= .000 PERCENT ERROR= .087

ROPT17	3	2.67	44.49	871.30	.37	12.00	44.26	864.00	.37

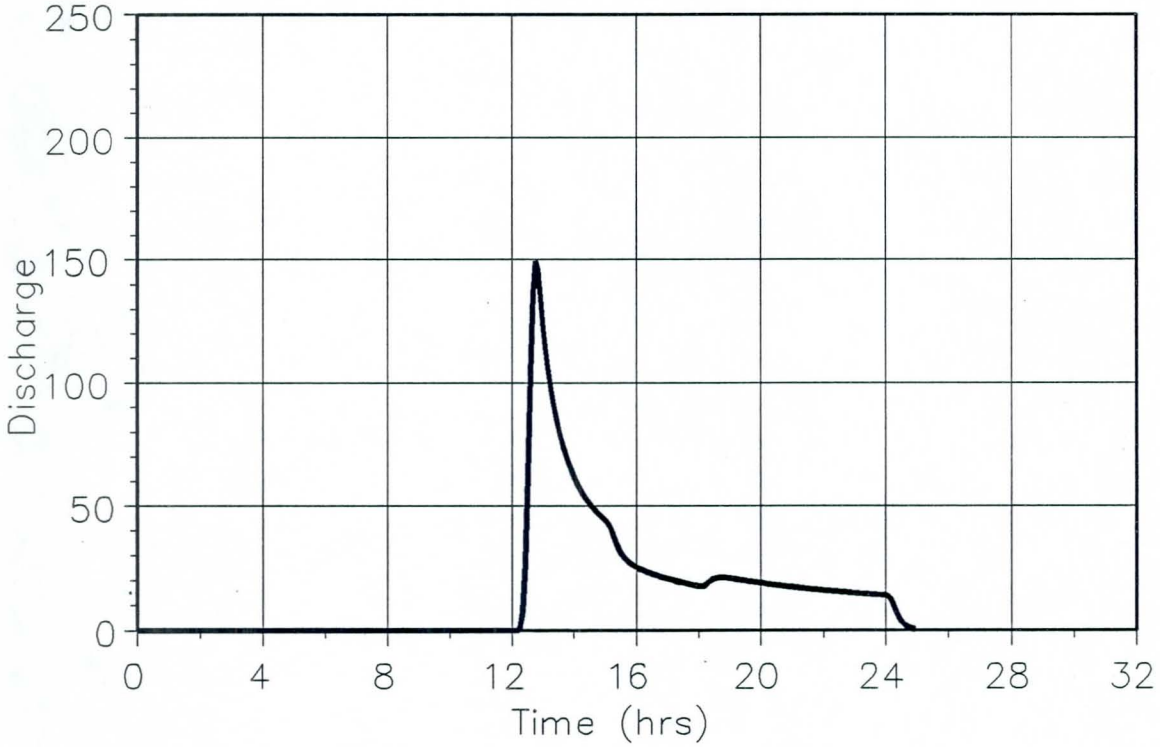
CONTINUITY SUMMARY (AC-FT) - INFLOW= 19.845 EXCESS= .000 OUTFLOW= 19.826 BASIN STORAGE= .000 PERCENT ERROR= .096

ROPT20	3	2.08	105.82	889.09	.39	12.00	105.60	900.00	.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= 54.632 EXCESS= .000 OUTFLOW= 54.594 BASIN STORAGE= .000 PERCENT ERROR= .069

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

Outlet F - Model



Location: Price Expressway and Calle Del Norte Drive
Volume: 32 Acre-Feet
Peak Q: 149 Cubic Feet per Second

OUTLET F INFLOW HYDROGRAPH

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASINF

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  08/15/1989  TIME  14:41:42 *
*                                       *
*****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
****************************************
```

```
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
```

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:::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::
:::                                       :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION   :::
:::                                       :::
:::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::
```

```
============================
H A E S T A D   M E T H O D S
============================
```

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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        Price Road Offsite Hydrology <BASINF>
  2           ID        Flows to Price Road Basin "F" (South of Warner Road)
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT        5                    300
  6           IO        3       0       0

  7           KK    OPT19
  8           KM        Optimized single basin for section 19
  9           KO        1       2                    60
 10           PH        1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 11           BA     1.10
 12           LS     2.43    89.6
 13           UD     0.30
 14           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.		
	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
7	OPT19	

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASINF

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/15/1989  TIME  14:41:42 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
****************************************
```

Price Road Offsite Hydrology <BASINF>
Flows to Price Road Basin "F" (South of Warner Road)
Initial abstraction used to represent development retention provided
100-Year 24-Hour Storm - June 1,1989 HDR - PHX

```
  6 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      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0055  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
```

*** ***

```
          **************
          *            *
  7 KK    *     OPT19  *
          *            *
          **************
```

Optimized single basin for section 19

```
 9 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          1  PRINT CONTROL
                    IPLOT          2  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         60  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        300  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

11 BA          SUBBASIN CHARACTERISTICS
                    TAREA       1.10  SUBBASIN AREA

               PRECIPITATION DATA

10 PH                              DEPTHS FOR   1-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
                 .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

12 LS          SCS LOSS RATE
                    STRTL       2.43  INITIAL ABSTRACTION
                   CRVNBR      89.60  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

13 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        .30  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            20 END-OF-PERIOD ORDINATES
            218.     702.    1333.    1555.    1429.    1117.     709.     475.     326.     217.
            147.      98.      66.      44.      30.      20.      14.      10.       6.       2.
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****

HYDROGRAPH AT STATION OPT19

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DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
								*								
1		0000	1	.00	.00	.00	0.	*	1		1230	151	.08	.05	.03	62.
1		0005	2	.00	.00	.00	0.	*	1		1235	152	.03	.02	.01	104.
1		0010	3	.00	.00	.00	0.	*	1		1240	153	.03	.02	.01	136.
1		0015	4	.00	.00	.00	0.	*	1		1245	154	.03	.01	.01	149.
1		0020	5	.00	.00	.00	0.	*	1		1250	155	.02	.01	.01	146.
1		0025	6	.00	.00	.00	0.	*	1		1255	156	.02	.01	.01	135.
1		0030	7	.00	.00	.00	0.	*	1		1300	157	.02	.01	.01	122.
1		0035	8	.00	.00	.00	0.	*	1		1305	158	.02	.01	.01	112.
1		0040	9	.00	.00	.00	0.	*	1		1310	159	.02	.01	.01	104.
1		0045	10	.00	.00	.00	0.	*	1		1315	160	.02	.01	.01	97.
1		0050	11	.00	.00	.00	0.	*	1		1320	161	.02	.01	.01	91.
1		0055	12	.00	.00	.00	0.	*	1		1325	162	.01	.01	.01	86.

1	0100	13	.00	.00	.00	0.	*	1	1330	163	.01	.01	.01	81.
1	0105	14	.00	.00	.00	0.	*	1	1335	164	.01	.01	.01	77.
1	0110	15	.00	.00	.00	0.	*	1	1340	165	.01	.01	.01	73.
1	0115	16	.00	.00	.00	0.	*	1	1345	166	.01	.00	.01	70.
1	0120	17	.00	.00	.00	0.	*	1	1350	167	.01	.00	.01	67.
1	0125	18	.00	.00	.00	0.	*	1	1355	168	.01	.00	.01	64.
1	0130	19	.00	.00	.00	0.	*	1	1400	169	.01	.00	.01	62.
1	0135	20	.00	.00	.00	0.	*	1	1405	170	.01	.00	.01	59.
1	0140	21	.00	.00	.00	0.	*	1	1410	171	.01	.00	.01	57.
1	0145	22	.00	.00	.00	0.	*	1	1415	172	.01	.00	.01	56.
1	0150	23	.00	.00	.00	0.	*	1	1420	173	.01	.00	.01	54.
1	0155	24	.00	.00	.00	0.	*	1	1425	174	.01	.00	.01	52.
1	0200	25	.00	.00	.00	0.	*	1	1430	175	.01	.00	.01	51.
1	0205	26	.00	.00	.00	0.	*	1	1435	176	.01	.00	.01	50.
1	0210	27	.00	.00	.00	0.	*	1	1440	177	.01	.00	.01	48.
1	0215	28	.00	.00	.00	0.	*	1	1445	178	.01	.00	.01	47.
1	0220	29	.00	.00	.00	0.	*	1	1450	179	.01	.00	.00	46.
1	0225	30	.00	.00	.00	0.	*	1	1455	180	.01	.00	.00	45.
1	0230	31	.00	.00	.00	0.	*	1	1500	181	.01	.00	.00	44.
1	0235	32	.00	.00	.00	0.	*	1	1505	182	.01	.00	.00	43.
1	0240	33	.00	.00	.00	0.	*	1	1510	183	.01	.00	.00	41.
1	0245	34	.00	.00	.00	0.	*	1	1515	184	.00	.00	.00	39.
1	0250	35	.00	.00	.00	0.	*	1	1520	185	.00	.00	.00	36.
1	0255	36	.00	.00	.00	0.	*	1	1525	186	.00	.00	.00	33.
1	0300	37	.00	.00	.00	0.	*	1	1530	187	.00	.00	.00	31.
1	0305	38	.00	.00	.00	0.	*	1	1535	188	.00	.00	.00	30.
1	0310	39	.00	.00	.00	0.	*	1	1540	189	.00	.00	.00	28.
1	0315	40	.00	.00	.00	0.	*	1	1545	190	.00	.00	.00	27.
1	0320	41	.00	.00	.00	0.	*	1	1550	191	.00	.00	.00	27.
1	0325	42	.00	.00	.00	0.	*	1	1555	192	.00	.00	.00	26.
1	0330	43	.00	.00	.00	0.	*	1	1600	193	.00	.00	.00	25.
1	0335	44	.00	.00	.00	0.	*	1	1605	194	.00	.00	.00	25.
1	0340	45	.00	.00	.00	0.	*	1	1610	195	.00	.00	.00	24.
1	0345	46	.00	.00	.00	0.	*	1	1615	196	.00	.00	.00	24.
1	0350	47	.00	.00	.00	0.	*	1	1620	197	.00	.00	.00	23.
1	0355	48	.00	.00	.00	0.	*	1	1625	198	.00	.00	.00	23.
1	0400	49	.00	.00	.00	0.	*	1	1630	199	.00	.00	.00	23.
1	0405	50	.00	.00	.00	0.	*	1	1635	200	.00	.00	.00	22.
1	0410	51	.00	.00	.00	0.	*	1	1640	201	.00	.00	.00	22.
1	0415	52	.00	.00	.00	0.	*	1	1645	202	.00	.00	.00	22.
1	0420	53	.00	.00	.00	0.	*	1	1650	203	.00	.00	.00	21.
1	0425	54	.00	.00	.00	0.	*	1	1655	204	.00	.00	.00	21.
1	0430	55	.00	.00	.00	0.	*	1	1700	205	.00	.00	.00	21.
1	0435	56	.00	.00	.00	0.	*	1	1705	206	.00	.00	.00	20.
1	0440	57	.00	.00	.00	0.	*	1	1710	207	.00	.00	.00	20.
1	0445	58	.00	.00	.00	0.	*	1	1715	208	.00	.00	.00	20.
1	0450	59	.00	.00	.00	0.	*	1	1720	209	.00	.00	.00	20.
1	0455	60	.00	.00	.00	0.	*	1	1725	210	.00	.00	.00	19.
1	0500	61	.00	.00	.00	0.	*	1	1730	211	.00	.00	.00	19.
1	0505	62	.00	.00	.00	0.	*	1	1735	212	.00	.00	.00	19.
1	0510	63	.00	.00	.00	0.	*	1	1740	213	.00	.00	.00	19.
1	0515	64	.00	.00	.00	0.	*	1	1745	214	.00	.00	.00	18.
1	0520	65	.00	.00	.00	0.	*	1	1750	215	.00	.00	.00	18.
1	0525	66	.00	.00	.00	0.	*	1	1755	216	.00	.00	.00	18.
1	0530	67	.00	.00	.00	0.	*	1	1800	217	.00	.00	.00	18.
1	0535	68	.00	.00	.00	0.	*	1	1805	218	.00	.00	.00	18.
1	0540	69	.00	.00	.00	0.	*	1	1810	219	.00	.00	.00	18.
1	0545	70	.00	.00	.00	0.	*	1	1815	220	.00	.00	.00	19.
1	0550	71	.00	.00	.00	0.	*	1	1820	221	.00	.00	.00	19.
1	0555	72	.00	.00	.00	0.	*	1	1825	222	.00	.00	.00	20.

1	0600	73	.00	.00	.00	0.	*	1	1830	223	.00	.00	.00	21.
1	0605	74	.00	.00	.00	0.	*	1	1835	224	.00	.00	.00	21.
1	0610	75	.00	.00	.00	0.	*	1	1840	225	.00	.00	.00	21.
1	0615	76	.00	.00	.00	0.	*	1	1845	226	.00	.00	.00	21.
1	0620	77	.00	.00	.00	0.	*	1	1850	227	.00	.00	.00	21.
1	0625	78	.00	.00	.00	0.	*	1	1855	228	.00	.00	.00	21.
1	0630	79	.00	.00	.00	0.	*	1	1900	229	.00	.00	.00	21.
1	0635	80	.00	.00	.00	0.	*	1	1905	230	.00	.00	.00	21.
1	0640	81	.00	.00	.00	0.	*	1	1910	231	.00	.00	.00	21.
1	0645	82	.00	.00	.00	0.	*	1	1915	232	.00	.00	.00	20.
1	0650	83	.00	.00	.00	0.	*	1	1920	233	.00	.00	.00	20.
1	0655	84	.00	.00	.00	0.	*	1	1925	234	.00	.00	.00	20.
1	0700	85	.00	.00	.00	0.	*	1	1930	235	.00	.00	.00	20.
1	0705	86	.00	.00	.00	0.	*	1	1935	236	.00	.00	.00	20.
1	0710	87	.00	.00	.00	0.	*	1	1940	237	.00	.00	.00	20.
1	0715	88	.00	.00	.00	0.	*	1	1945	238	.00	.00	.00	19.
1	0720	89	.00	.00	.00	0.	*	1	1950	239	.00	.00	.00	19.
1	0725	90	.00	.00	.00	0.	*	1	1955	240	.00	.00	.00	19.
1	0730	91	.00	.00	.00	0.	*	1	2000	241	.00	.00	.00	19.
1	0735	92	.00	.00	.00	0.	*	1	2005	242	.00	.00	.00	19.
1	0740	93	.00	.00	.00	0.	*	1	2010	243	.00	.00	.00	19.
1	0745	94	.00	.00	.00	0.	*	1	2015	244	.00	.00	.00	19.
1	0750	95	.00	.00	.00	0.	*	1	2020	245	.00	.00	.00	18.
1	0755	96	.00	.00	.00	0.	*	1	2025	246	.00	.00	.00	18.
1	0800	97	.00	.00	.00	0.	*	1	2030	247	.00	.00	.00	18.
1	0805	98	.00	.00	.00	0.	*	1	2035	248	.00	.00	.00	18.
1	0810	99	.00	.00	.00	0.	*	1	2040	249	.00	.00	.00	18.
1	0815	100	.00	.00	.00	0.	*	1	2045	250	.00	.00	.00	18.
1	0820	101	.00	.00	.00	0.	*	1	2050	251	.00	.00	.00	18.
1	0825	102	.00	.00	.00	0.	*	1	2055	252	.00	.00	.00	17.
1	0830	103	.00	.00	.00	0.	*	1	2100	253	.00	.00	.00	17.
1	0835	104	.00	.00	.00	0.	*	1	2105	254	.00	.00	.00	17.
1	0840	105	.00	.00	.00	0.	*	1	2110	255	.00	.00	.00	17.
1	0845	106	.00	.00	.00	0.	*	1	2115	256	.00	.00	.00	17.
1	0850	107	.00	.00	.00	0.	*	1	2120	257	.00	.00	.00	17.
1	0855	108	.01	.01	.00	0.	*	1	2125	258	.00	.00	.00	17.
1	0900	109	.01	.01	.00	0.	*	1	2130	259	.00	.00	.00	17.
1	0905	110	.01	.01	.00	0.	*	1	2135	260	.00	.00	.00	17.
1	0910	111	.01	.01	.00	0.	*	1	2140	261	.00	.00	.00	16.
1	0915	112	.01	.01	.00	0.	*	1	2145	262	.00	.00	.00	16.
1	0920	113	.01	.01	.00	0.	*	1	2150	263	.00	.00	.00	16.
1	0925	114	.01	.01	.00	0.	*	1	2155	264	.00	.00	.00	16.
1	0930	115	.01	.01	.00	0.	*	1	2200	265	.00	.00	.00	16.
1	0935	116	.01	.01	.00	0.	*	1	2205	266	.00	.00	.00	16.
1	0940	117	.01	.01	.00	0.	*	1	2210	267	.00	.00	.00	16.
1	0945	118	.01	.01	.00	0.	*	1	2215	268	.00	.00	.00	16.
1	0950	119	.01	.01	.00	0.	*	1	2220	269	.00	.00	.00	16.
1	0955	120	.01	.01	.00	0.	*	1	2225	270	.00	.00	.00	16.
1	1000	121	.01	.01	.00	0.	*	1	2230	271	.00	.00	.00	15.
1	1005	122	.01	.01	.00	0.	*	1	2235	272	.00	.00	.00	15.
1	1010	123	.01	.01	.00	0.	*	1	2240	273	.00	.00	.00	15.
1	1015	124	.01	.01	.00	0.	*	1	2245	274	.00	.00	.00	15.
1	1020	125	.01	.01	.00	0.	*	1	2250	275	.00	.00	.00	15.
1	1025	126	.01	.01	.00	0.	*	1	2255	276	.00	.00	.00	15.
1	1030	127	.01	.01	.00	0.	*	1	2300	277	.00	.00	.00	15.
1	1035	128	.01	.01	.00	0.	*	1	2305	278	.00	.00	.00	15.
1	1040	129	.01	.01	.00	0.	*	1	2310	279	.00	.00	.00	15.
1	1045	130	.01	.01	.00	0.	*	1	2315	280	.00	.00	.00	15.
1	1050	131	.02	.02	.00	0.	*	1	2320	281	.00	.00	.00	15.
1	1055	132	.02	.02	.00	0.	*	1	2325	282	.00	.00	.00	15.

1	1100	133	.02	.02	.00	0.	*	1	2330	283	.00	.00	.00	14.
1	1105	134	.02	.02	.00	0.	*	1	2335	284	.00	.00	.00	14.
1	1110	135	.02	.02	.00	0.	*	1	2340	285	.00	.00	.00	14.
1	1115	136	.02	.02	.00	0.	*	1	2345	286	.00	.00	.00	14.
1	1120	137	.02	.02	.00	0.	*	1	2350	287	.00	.00	.00	14.
1	1125	138	.03	.03	.00	0.	*	1	2355	288	.00	.00	.00	14.
1	1130	139	.03	.03	.00	0.	*	2	0000	289	.00	.00	.00	14.
1	1135	140	.08	.08	.00	0.	*	2	0005	290	.00	.00	.00	14.
1	1140	141	.09	.09	.00	0.	*	2	0010	291	.00	.00	.00	12.
1	1145	142	.10	.10	.00	0.	*	2	0015	292	.00	.00	.00	10.
1	1150	143	.12	.12	.00	0.	*	2	0020	293	.00	.00	.00	8.
1	1155	144	.15	.15	.00	0.	*	2	0025	294	.00	.00	.00	5.
1	1200	145	.31	.31	.00	0.	*	2	0030	295	.00	.00	.00	4.
1	1205	146	.56	.56	.00	0.	*	2	0035	296	.00	.00	.00	2.
1	1210	147	.22	.22	.00	0.	*	2	0040	297	.00	.00	.00	2.
1	1215	148	.13	.13	.00	1.	*	2	0045	298	.00	.00	.00	1.
1	1220	149	.11	.09	.02	8.	*	2	0050	299	.00	.00	.00	1.
1	1225	150	.10	.07	.03	27.	*	2	0055	300	.00	.00	.00	0.
							*							

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TOTAL RAINFALL = 3.55, TOTAL LOSS = 3.00, TOTAL EXCESS = .55

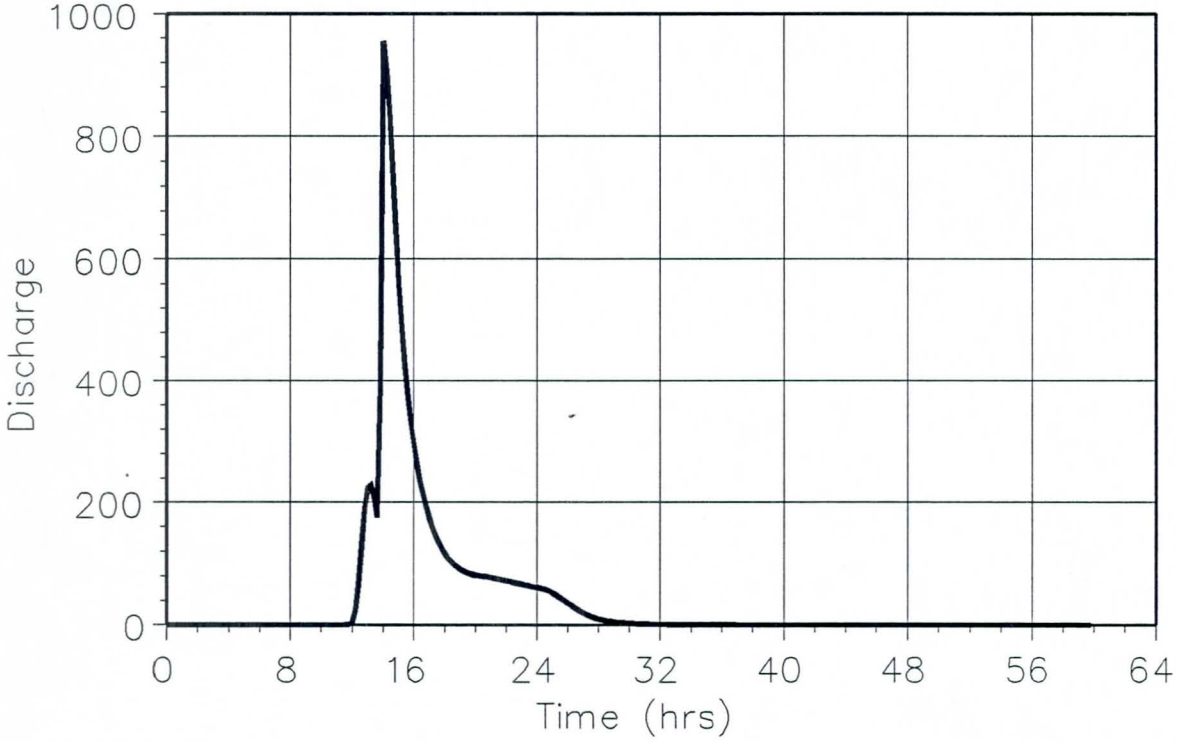
PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
149.	12.75	(CFS)	48.	16.	16.	16.
		(INCHES)	.403	.550	.550	.550
		(AC-FT)	24.	32.	32.	32.

CUMULATIVE AREA = 1.10 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	OPT19	149.	12.75	48.	16.	16.	1.10		

Outlet G - Model



Location: Price Expressway and Galveston Street
Volume: 216 Acre-Feet
Peak Q: 954 Cubic Feet per Second

OUTLET G INFLOW HYDROGRAPH

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASING

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****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/15/1989  TIME  14:37:28 *
*                                      *
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****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*                                      *
*                                      *
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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
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:::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::
:::                                     :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION  :::
:::                                     :::
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:::::::::::::::::::::::::::::::::::::::::::
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H A E S T A D   M E T H O D S
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

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

  1           ID        Price  Road  Offsite Hydrology -                        <BASING>
  2           ID        Flows to Galveston Regional Basin
  3           ID        Chandler Regional Retention Basins Modeled
  4           ID        100-Year 24-Hour Storm - June 8,1989   HDR - PHX
              *DIAGRAM
  5           IT      12                    300
  6           IO       3       0       0

  7           KK   OPT28
  8           KM        Optimized single basin for section 28 <GRB.DAT>
  9           KO       1       2
 10           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 11           BA    1.00
 12           LS    0.90   93.00
 13           UD    0.75

 14           KK   GALVB
 15           KM        Route flows through Galveston Basin (first 35.2 ac. ft. into basin)
 16           RS       1    STOR     0.0
 17           SV     0.0    35.2    35.5    35.8    36.1    39.7    42.2
 18           SQ     0.0     0.0    43.0    86.0   129.0   526.0  1000.0

 19           KK   RGALV
 20           KM        Route optimized single basin to Chandler and Anderson Springs Blvd.
 21           RK    5650  0.0010   0.016            TRAP     0.0    25.0

 22           KK  OPT29A
 23           KM        Optimized Arrowhead Basin inflow for section 29 (East half) <CD.DAT>
 24           BA    0.49
 25           LS    1.28   90.40
 26           UD    0.63

 27           KK   ARROB
 28           KM        Route flows through Arrowhead Basin (first 25 ac.ft. into basin)
 29           RS       1    STOR     0.0
 30           SV     0.0    25.0   25.30   25.60   25.90   29.50   32.00
 31           SQ     0.0     0.0    43.0    86.0   129.0   526.0  1000.0

 32           KK   RARRO
 33           KM        Route C2CD6 flows to Anderson Springs Blvd.
 34           RK     800  0.0013   0.016            TRAP     0.0    25.0

 35           KK  OPT29B
 36           KM        Runoff from Sec 29 (West half) @ Anderson Springs Blvd.
 37           BA    0.63
 38           LS    2.30    54.9
 39           UD    2.90

 40           KK     R29
 41           KM        Route flows to Chandler and Dobson Roads
 42           RK    2300  0.0024   0.016            TRAP     0.0    50.0
```

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

  43          KK   COM29
  44          KM        Combine flows at Anderson Springs Blvd.
  45          HC       3

  46          KK   OPT21
  47          KM        Optimized combined hydrograph for Section 21 <AR.DAT>
  48          BA    1.45
  49          LS    1.22    77.5
  50          UD    1.16

  51          KK  ROPT21
  52          KM        Route Optimized hydrograph to Dobson and Ray Rds.
  53          RK    2640  0.0010   0.016            TRAP     0.0    50.0

  54          KK     R21
  55          KM        Route flows to Chandler and Dobson
  56          RK    5280  0.0009   0.016            TRAP     0.0    50.0

  57          KK     C21
  58          KM        Combine flows at Dobson and Chandler
  59          HC       2

  60          KK    RR21
  61          KM        Route flows from Dobson to Price along Chandler
  62          RK    5280  0.0017   0.016            TRAP     0.0    50.0

  63          KK  OPT30B
  64          KM        Optimized Combined Hydrograph for Section 30 (South half) <PC.DAT>
  65          BA    0.41
  66          LS    0.92    69.8
  67          UD    0.85

  68          KK    C30B
  69          KM        Combine flows at Chandler and Price
  70          HC       2

  71          KK  OPT30A
  72          KM        Optimized combined hydrograph for Section 30 (North half) <PG.DAT>
  73          BA    0.39
  74          LS    0.60    63.1
  75          UD    0.90

  76          KK    BASG
  77          KM        Combine flows into Galveston Regional Basin
  78          KO       1       2                     60
  79          HC       2
  80          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7      OPT28
              V
              V
  14      GALVB
              V
              V
  19      RGALV
              .
              .
  22          .      OPT29A
              .          V
              .          V
  27          .      ARROB
              .          V
              .          V
  32          .      RARRO
              .          .
              .          .
  35          .          .     OPT29B
              .          .         V
              .          .         V
  40          .          .       R29
              .          .         .
              .          .         .
  43      COM29.......................
              .
              .
  46          .      OPT21
              .          V
              .          V
  51          .     ROPT21
              .          V
              .          V
  54          .        R21
              .          .
              .          .
  57        C21............
            V
            V
  60      RR21
              .
              .
  63          .     OPT30B
              .          .
              .          .
  68      C30B............
              .
              .
  71          .     OPT30A
              .          .
              .          .
  76      BASG............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASING

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  08/15/1989  TIME  14:37:28 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
****************************************
```

Price Road Offsite Hydrology - <BASING>
Flows to Galveston Regional Basin
Chandler Regional Retention Basins Modeled
100-Year 24-Hour Storm - June 8,1989 HDR - PHX

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

   IT         HYDROGRAPH TIME DATA
                     NMIN         12  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      3    0  ENDING DATE
                   NDTIME       1148  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .20 HOURS
                   TOTAL TIME BASE   59.80 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
```

*** ***

```
          **************
          *            *
  7 KK    *     OPT28  *
          *            *
          **************
```

Optimized single basin for section 28 <GRB.DAT>

```
 9 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          1  PRINT CONTROL
                    IPLOT          2  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

             SUBBASIN RUNOFF DATA

11 BA          SUBBASIN CHARACTERISTICS
                    TAREA       1.00  SUBBASIN AREA

               PRECIPITATION DATA

10 PH                              DEPTHS FOR   1-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
                 .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

12 LS          SCS LOSS RATE
                    STRTL         .90  INITIAL ABSTRACTION
                   CRVNBR       93.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

13 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG         .75  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          21 END-OF-PERIOD ORDINATES
             75.     240.     470.     565.     537.     437.     292.     194.     135.      92.
             62.      42.      29.      20.      14.       9.       6.       5.       3.       2.
              0.
```

****

HYDROGRAPH AT STATION OPT28

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	*	2		0600	151	.00	.00	.00	0.
1		0012	2	.01	.01	.00	0.	*	2		0612	152	.00	.00	.00	0.
1		0024	3	.01	.01	.00	0.	*	2		0624	153	.00	.00	.00	0.
1		0036	4	.01	.01	.00	0.	*	2		0636	154	.00	.00	.00	0.
1		0048	5	.01	.01	.00	0.	*	2		0648	155	.00	.00	.00	0.
1		0100	6	.01	.01	.00	0.	*	2		0700	156	.00	.00	.00	0.
1		0112	7	.01	.01	.00	0.	*	2		0712	157	.00	.00	.00	0.
1		0124	8	.01	.01	.00	0.	*	2		0724	158	.00	.00	.00	0.
1		0136	9	.01	.01	.00	0.	*	2		0736	159	.00	.00	.00	0.
1		0148	10	.01	.01	.00	0.	*	2		0748	160	.00	.00	.00	0.
1		0200	11	.01	.01	.00	0.	*	2		0800	161	.00	.00	.00	0.
1		0212	12	.01	.01	.00	0.	*	2		0812	162	.00	.00	.00	0.
1		0224	13	.01	.01	.00	0.	*	2		0824	163	.00	.00	.00	0.
1		0236	14	.01	.01	.00	0.	*	2		0836	164	.00	.00	.00	0.
1		0248	15	.01	.01	.00	0.	*	2		0848	165	.00	.00	.00	0.
1		0300	16	.01	.01	.00	0.	*	2		0900	166	.00	.00	.00	0.
1		0312	17	.01	.01	.00	0.	*	2		0912	167	.00	.00	.00	0.

1	0324	18	.01	.01	.00	0.	*	2	0924	168	.00	.00	.00	0.
1	0336	19	.01	.01	.00	0.	*	2	0936	169	.00	.00	.00	0.
1	0348	20	.01	.01	.00	0.	*	2	0948	170	.00	.00	.00	0.
1	0400	21	.01	.01	.00	0.	*	2	1000	171	.00	.00	.00	0.
1	0412	22	.01	.01	.00	0.	*	2	1012	172	.00	.00	.00	0.
1	0424	23	.01	.01	.00	0.	*	2	1024	173	.00	.00	.00	0.
1	0436	24	.01	.01	.00	0.	*	2	1036	174	.00	.00	.00	0.
1	0448	25	.01	.01	.00	0.	*	2	1048	175	.00	.00	.00	0.
1	0500	26	.01	.01	.00	0.	*	2	1100	176	.00	.00	.00	0.
1	0512	27	.01	.01	.00	0.	*	2	1112	177	.00	.00	.00	0.
1	0524	28	.01	.01	.00	0.	*	2	1124	178	.00	.00	.00	0.
1	0536	29	.01	.01	.00	0.	*	2	1136	179	.00	.00	.00	0.
1	0548	30	.01	.01	.00	0.	*	2	1148	180	.00	.00	.00	0.
1	0600	31	.01	.01	.00	0.	*	2	1200	181	.00	.00	.00	0.
1	0612	32	.01	.01	.00	0.	*	2	1212	182	.00	.00	.00	0.
1	0624	33	.01	.01	.00	0.	*	2	1224	183	.00	.00	.00	0.
1	0636	34	.01	.01	.00	0.	*	2	1236	184	.00	.00	.00	0.
1	0648	35	.01	.01	.00	0.	*	2	1248	185	.00	.00	.00	0.
1	0700	36	.01	.01	.00	0.	*	2	1300	186	.00	.00	.00	0.
1	0712	37	.01	.01	.00	0.	*	2	1312	187	.00	.00	.00	0.
1	0724	38	.01	.01	.00	0.	*	2	1324	188	.00	.00	.00	0.
1	0736	39	.01	.01	.00	0.	*	2	1336	189	.00	.00	.00	0.
1	0748	40	.01	.01	.00	0.	*	2	1348	190	.00	.00	.00	0.
1	0800	41	.01	.01	.00	0.	*	2	1400	191	.00	.00	.00	0.
1	0812	42	.01	.01	.00	0.	*	2	1412	192	.00	.00	.00	0.
1	0824	43	.01	.01	.00	0.	*	2	1424	193	.00	.00	.00	0.
1	0836	44	.01	.01	.00	0.	*	2	1436	194	.00	.00	.00	0.
1	0848	45	.01	.01	.00	0.	*	2	1448	195	.00	.00	.00	0.
1	0900	46	.01	.01	.00	0.	*	2	1500	196	.00	.00	.00	0.
1	0912	47	.02	.02	.00	0.	*	2	1512	197	.00	.00	.00	0.
1	0924	48	.02	.02	.00	0.	*	2	1524	198	.00	.00	.00	0.
1	0936	49	.02	.02	.00	0.	*	2	1536	199	.00	.00	.00	0.
1	0948	50	.02	.02	.00	0.	*	2	1548	200	.00	.00	.00	0.
1	1000	51	.02	.02	.00	0.	*	2	1600	201	.00	.00	.00	0.
1	1012	52	.02	.02	.00	0.	*	2	1612	202	.00	.00	.00	0.
1	1024	53	.03	.03	.00	0.	*	2	1624	203	.00	.00	.00	0.
1	1036	54	.03	.03	.00	0.	*	2	1636	204	.00	.00	.00	0.
1	1048	55	.03	.03	.00	0.	*	2	1648	205	.00	.00	.00	0.
1	1100	56	.04	.04	.00	0.	*	2	1700	206	.00	.00	.00	0.
1	1112	57	.05	.05	.00	0.	*	2	1712	207	.00	.00	.00	0.
1	1124	58	.06	.06	.00	0.	*	2	1724	208	.00	.00	.00	0.
1	1136	59	.07	.07	.00	0.	*	2	1736	209	.00	.00	.00	0.
1	1148	60	.23	.22	.01	1.	*	2	1748	210	.00	.00	.00	0.
1	1200	61	.39	.21	.18	16.	*	2	1800	211	.00	.00	.00	0.
1	1212	62	.96	.20	.76	105.	*	2	1812	212	.00	.00	.00	0.
1	1224	63	.27	.03	.25	292.	*	2	1824	213	.00	.00	.00	0.
1	1236	64	.20	.02	.18	538.	*	2	1836	214	.00	.00	.00	0.
1	1248	65	.06	.00	.06	696.	*	2	1848	215	.00	.00	.00	0.
1	1300	66	.05	.00	.05	734.	*	2	1900	216	.00	.00	.00	0.
1	1312	67	.04	.00	.04	665.	*	2	1912	217	.00	.00	.00	0.
1	1324	68	.04	.00	.03	532.	*	2	1924	218	.00	.00	.00	0.
1	1336	69	.03	.00	.03	412.	*	2	1936	219	.00	.00	.00	0.
1	1348	70	.03	.00	.03	320.	*	2	1948	220	.00	.00	.00	0.
1	1400	71	.03	.00	.02	251.	*	2	2000	221	.00	.00	.00	0.
1	1412	72	.02	.00	.02	200.	*	2	2012	222	.00	.00	.00	0.
1	1424	73	.02	.00	.02	163.	*	2	2024	223	.00	.00	.00	0.
1	1436	74	.02	.00	.02	135.	*	2	2036	224	.00	.00	.00	0.
1	1448	75	.02	.00	.02	114.	*	2	2048	225	.00	.00	.00	0.
1	1500	76	.02	.00	.02	98.	*	2	2100	226	.00	.00	.00	0.
1	1512	77	.01	.00	.01	86.	*	2	2112	227	.00	.00	.00	0.

1	1524	78	.01	.00	.01	75.	*	2	2124	228	.00	.00	.00	0.
1	1536	79	.01	.00	.01	66.	*	2	2136	229	.00	.00	.00	0.
1	1548	80	.01	.00	.01	58.	*	2	2148	230	.00	.00	.00	0.
1	1600	81	.01	.00	.01	50.	*	2	2200	231	.00	.00	.00	0.
1	1612	82	.01	.00	.01	44.	*	2	2212	232	.00	.00	.00	0.
1	1624	83	.01	.00	.01	39.	*	2	2224	233	.00	.00	.00	0.
1	1636	84	.01	.00	.01	36.	*	2	2236	234	.00	.00	.00	0.
1	1648	85	.01	.00	.01	34.	*	2	2248	235	.00	.00	.00	0.
1	1700	86	.01	.00	.01	32.	*	2	2300	236	.00	.00	.00	0.
1	1712	87	.01	.00	.01	30.	*	2	2312	237	.00	.00	.00	0.
1	1724	88	.01	.00	.01	29.	*	2	2324	238	.00	.00	.00	0.
1	1736	89	.01	.00	.01	27.	*	2	2336	239	.00	.00	.00	0.
1	1748	90	.01	.00	.01	26.	*	2	2348	240	.00	.00	.00	0.
1	1800	91	.01	.00	.01	25.	*	3	0000	241	.00	.00	.00	0.
1	1812	92	.01	.00	.01	24.	*	3	0012	242	.00	.00	.00	0.
1	1824	93	.01	.00	.01	24.	*	3	0024	243	.00	.00	.00	0.
1	1836	94	.01	.00	.01	24.	*	3	0036	244	.00	.00	.00	0.
1	1848	95	.01	.00	.01	25.	*	3	0048	245	.00	.00	.00	0.
1	1900	96	.01	.00	.01	25.	*	3	0100	246	.00	.00	.00	0.
1	1912	97	.01	.00	.01	25.	*	3	0112	247	.00	.00	.00	0.
1	1924	98	.01	.00	.01	25.	*	3	0124	248	.00	.00	.00	0.
1	1936	99	.01	.00	.01	25.	*	3	0136	249	.00	.00	.00	0.
1	1948	100	.01	.00	.01	25.	*	3	0148	250	.00	.00	.00	0.
1	2000	101	.01	.00	.01	24.	*	3	0200	251	.00	.00	.00	0.
1	2012	102	.01	.00	.01	24.	*	3	0212	252	.00	.00	.00	0.
1	2024	103	.01	.00	.01	24.	*	3	0224	253	.00	.00	.00	0.
1	2036	104	.01	.00	.01	23.	*	3	0236	254	.00	.00	.00	0.
1	2048	105	.01	.00	.01	23.	*	3	0248	255	.00	.00	.00	0.
1	2100	106	.01	.00	.01	22.	*	3	0300	256	.00	.00	.00	0.
1	2112	107	.01	.00	.01	22.	*	3	0312	257	.00	.00	.00	0.
1	2124	108	.01	.00	.01	21.	*	3	0324	258	.00	.00	.00	0.
1	2136	109	.01	.00	.01	21.	*	3	0336	259	.00	.00	.00	0.
1	2148	110	.01	.00	.01	21.	*	3	0348	260	.00	.00	.00	0.
1	2200	111	.01	.00	.01	20.	*	3	0400	261	.00	.00	.00	0.
1	2212	112	.01	.00	.01	20.	*	3	0412	262	.00	.00	.00	0.
1	2224	113	.01	.00	.01	20.	*	3	0424	263	.00	.00	.00	0.
1	2236	114	.01	.00	.01	19.	*	3	0436	264	.00	.00	.00	0.
1	2248	115	.01	.00	.01	19.	*	3	0448	265	.00	.00	.00	0.
1	2300	116	.01	.00	.01	19.	*	3	0500	266	.00	.00	.00	0.
1	2312	117	.01	.00	.01	18.	*	3	0512	267	.00	.00	.00	0.
1	2324	118	.01	.00	.01	18.	*	3	0524	268	.00	.00	.00	0.
1	2336	119	.01	.00	.01	18.	*	3	0536	269	.00	.00	.00	0.
1	2348	120	.01	.00	.01	17.	*	3	0548	270	.00	.00	.00	0.
2	0000	121	.01	.00	.00	17.	*	3	0600	271	.00	.00	.00	0.
2	0012	122	.00	.00	.00	17.	*	3	0612	272	.00	.00	.00	0.
2	0024	123	.00	.00	.00	15.	*	3	0624	273	.00	.00	.00	0.
2	0036	124	.00	.00	.00	13.	*	3	0636	274	.00	.00	.00	0.
2	0048	125	.00	.00	.00	10.	*	3	0648	275	.00	.00	.00	0.
2	0100	126	.00	.00	.00	7.	*	3	0700	276	.00	.00	.00	0.
2	0112	127	.00	.00	.00	5.	*	3	0712	277	.00	.00	.00	0.
2	0124	128	.00	.00	.00	3.	*	3	0724	278	.00	.00	.00	0.
2	0136	129	.00	.00	.00	2.	*	3	0736	279	.00	.00	.00	0.
2	0148	130	.00	.00	.00	1.	*	3	0748	280	.00	.00	.00	0.
2	0200	131	.00	.00	.00	1.	*	3	0800	281	.00	.00	.00	0.
2	0212	132	.00	.00	.00	1.	*	3	0812	282	.00	.00	.00	0.
2	0224	133	.00	.00	.00	0.	*	3	0824	283	.00	.00	.00	0.
2	0236	134	.00	.00	.00	0.	*	3	0836	284	.00	.00	.00	0.
2	0248	135	.00	.00	.00	0.	*	3	0848	285	.00	.00	.00	0.
2	0300	136	.00	.00	.00	0.	*	3	0900	286	.00	.00	.00	0.
2	0312	137	.00	.00	.00	0.	*	3	0912	287	.00	.00	.00	0.

2	0324	138	.00	.00	.00	0.	*	3	0924	288	.00	.00	.00	0.
2	0336	139	.00	.00	.00	0.	*	3	0936	289	.00	.00	.00	0.
2	0348	140	.00	.00	.00	0.	*	3	0948	290	.00	.00	.00	0.
2	0400	141	.00	.00	.00	0.	*	3	1000	291	.00	.00	.00	0.
2	0412	142	.00	.00	.00	0.	*	3	1012	292	.00	.00	.00	0.
2	0424	143	.00	.00	.00	0.	*	3	1024	293	.00	.00	.00	0.
2	0436	144	.00	.00	.00	0.	*	3	1036	294	.00	.00	.00	0.
2	0448	145	.00	.00	.00	0.	*	3	1048	295	.00	.00	.00	0.
2	0500	146	.00	.00	.00	0.	*	3	1100	296	.00	.00	.00	0.
2	0512	147	.00	.00	.00	0.	*	3	1112	297	.00	.00	.00	0.
2	0524	148	.00	.00	.00	0.	*	3	1124	298	.00	.00	.00	0.
2	0536	149	.00	.00	.00	0.	*	3	1136	299	.00	.00	.00	0.
2	0548	150	.00	.00	.00	0.	*	3	1148	300	.00	.00	.00	0.
							*							

****

TOTAL RAINFALL = 3.55, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.06

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
734.	13.00	(CFS)	197.	55.	22.	22.
		(INCHES)	1.831	2.064	2.064	2.064
		(AC-FT)	98.	110.	110.	110.

CUMULATIVE AREA = 1.00 SQ MI

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          **************
          *            *
 14 KK    *     GALVB  *
          *            *
          **************
```

Route flows through Galveston Basin (first 35.2 ac. ft. into basin)

HYDROGRAPH ROUTING DATA

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

17 SV	STORAGE	.0	35.2	35.5	35.8	36.1	39.7	42.2
18 SQ	DISCHARGE	0.	0.	43.	86.	129.	526.	1000.

***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 1000.
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 GALVB

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
601.	13.40	(CFS)	130.	38.	15.	15.
		(INCHES)	1.209	1.404	1.404	1.404
		(AC-FT)	64.	75.	75.	75.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	59.80-HR
40.	13.40	36.	35.	28.	28.

CUMULATIVE AREA = 1.00 SQ MI

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          **************
          *            *
 19 KK    *     RGALV  *
          *            *
          **************
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Route optimized single basin to Chandler and Anderson Springs Blvd.

HYDROGRAPH ROUTING DATA

21 RK KINEMATIC WAVE STREAM ROUTING

L	5650.	CHANNEL LENGTH
S	.0010	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.64	1.33	2.23	627.78	600.42	821.08	1.40	4.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= 74.857 EXCESS= .000 OUTFLOW= 74.430 BASIN STORAGE= .000 PERCENT ERROR= .571

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.64	1.33	12.00	594.11	816.00	1.40

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

HYDROGRAPH AT STATION RGALV

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
594.	13.60	(CFS)	128.	38.	15.	15.
		(INCHES)	1.189	1.403	1.403	1.403
		(AC-FT)	63.	75.	75.	75.

CUMULATIVE AREA = 1.00 SQ MI

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*            *
*   OPT29A   *
*            *
**************
```

22 KK

Optimized Arrowhead Basin inflow for section 29 (East half) <CD.DAT>

SUBBASIN RUNOFF DATA

24 BA SUBBASIN CHARACTERISTICS

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                    TAREA          .49  SUBBASIN AREA

            PRECIPITATION DATA

10 PH                                 DEPTHS FOR   1-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
              .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                  STORM AREA =   40.00

25 LS       SCS LOSS RATE
                    STRTL        1.28  INITIAL ABSTRACTION
                   CRVNBR       90.40  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

26 UD       SCS DIMENSIONLESS UNITGRAPH
                     TLAG         .63  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                            18 END-OF-PERIOD ORDINATES
            54.      182.      306.      321.      261.      167.      104.       68.       43.       28.
            17.       11.        7.        5.        3.        2.        1.        0.

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

                     HYDROGRAPH AT STATION   OPT29A

  TOTAL RAINFALL =    3.55, TOTAL LOSS =    2.00, TOTAL EXCESS =    1.55

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                  6-HR      24-HR      72-HR     59.80-HR
   270.     13.00       (CFS)      70.        20.         8.          8.
                      (INCHES)    1.336      1.546      1.546       1.546
                       (AC-FT)     35.        40.        40.         40.

                     CUMULATIVE AREA =     .49 SQ MI


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

          **************
          *            *
27 KK     *     ARROB  *
          *            *
          **************
                                Route flows through Arrowhead Basin (first 25 ac.ft. into basin)

            HYDROGRAPH ROUTING DATA

29 RS       STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       STOR  TYPE OF INITIAL CONDITION
                   RSVRIC        .00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT
```

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 30 SV          STORAGE          .0      25.0      25.3      25.6      25.9      29.5      32.0

 31 SQ         DISCHARGE         0.        0.       43.       86.      129.      526.     1000.

                                                          ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1000.
                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    ARROB

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
     75.      14.20       (CFS)      23.         8.          3.          3.
                        (INCHES)    .441       .590        .590        .590
                         (AC-FT)     12.        15.         15.         15.

PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                 6-HR       24-HR       72-HR     59.80-HR
     26.      14.20                  25.        25.         20.         20.

                       CUMULATIVE AREA =     .49 SQ MI


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


          **************
          *            *
 32 KK    *     RARRO  *
          *            *
          **************
                         Route C2CD6 flows to Anderson Springs Blvd.

            HYDROGRAPH ROUTING DATA

 34 RK         KINEMATIC WAVE STREAM ROUTING
                        L        800.  CHANNEL LENGTH
                        S       .0013  SLOPE
                        N        .016  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .00  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD         .00  BOTTOM WIDTH OR DIAMETER
                        Z       25.00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                          ***
                                 COMPUTED KINEMATIC PARAMETERS
                                      VARIABLE TIME STEP
                                    (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                              PEAK                CELERITY
                                                  (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)
```

```
                    3        .72      1.33      1.44    266.67     75.32    854.78       .59      3.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=   15.410  EXCESS=     .000 OUTFLOW=   15.389 BASIN STORAGE=     .000 PERCENT ERROR=     .133

                                    INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3        .72      1.33     12.00              70.69    852.00       .59

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

                     HYDROGRAPH AT STATION    RARRO

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR       24-HR       72-HR     59.80-HR
    71.       14.20       (CFS)      23.         8.          3.          3.
                         (INCHES)   .439       .591        .591        .591
                         (AC-FT)     11.        15.         15.         15.

                     CUMULATIVE AREA =     .49 SQ MI


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


          **************
          *            *
 35 KK    *   OPT29B   *
          *            *
          **************
                          Runoff from Sec 29 (West half) @ Anderson Springs Blvd.

            SUBBASIN RUNOFF DATA

 37 BA        SUBBASIN CHARACTERISTICS
                    TAREA          .63  SUBBASIN AREA

              PRECIPITATION DATA

 10 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

 38 LS        SCS LOSS RATE
                    STRTL         2.30  INITIAL ABSTRACTION
                   CRVNBR        54.90  CURVE NUMBER
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 39 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG          2.90  LAG

                                                   ***
```

UNIT HYDROGRAPH
74 END-OF-PERIOD ORDINATES

2.	5.	10.	16.	23.	31.	42.	54.	67.	78.
87.	94.	98.	101.	101.	101.	98.	94.	90.	85.
79.	72.	65.	57.	50.	44.	40.	36.	32.	28.
26.	23.	21.	19.	17.	15.	14.	12.	11.	10.
9.	8.	7.	6.	6.	5.	5.	4.	4.	3.
3.	3.	2.	2.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	0.	0.	0.
0.	0.	0.	0.						

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

HYDROGRAPH AT STATION OPT29B

TOTAL RAINFALL = 3.55, TOTAL LOSS = 3.38, TOTAL EXCESS = .17

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
8.	16.40	(CFS)	6.	3.	1.	1.
		(INCHES)	.095	.165	.165	.165
		(AC-FT)	3.	6.	6.	6.

CUMULATIVE AREA = .63 SQ MI

*** ***

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          **************
          *            *
 40 KK    *      R29   *
          *            *
          **************
```

Route flows to Chandler and Dobson Roads

HYDROGRAPH ROUTING DATA

42 RK KINEMATIC WAVE STREAM ROUTING

L	2300.	CHANNEL LENGTH
S	.0024	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	50.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.78	1.33	6.81	766.67	8.22	1002.40	.16	1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= 5.545 EXCESS= .000 OUTFLOW= 5.540 BASIN STORAGE= .000 PERCENT ERROR= .080

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3 .78 1.33 12.00 8.22 1008.00 .16

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

HYDROGRAPH AT STATION R29

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
8.	16.80	(CFS)	6.	3.	1.	1.
		(INCHES)	.095	.165	.165	.165
		(AC-FT)	3.	6.	6.	6.

CUMULATIVE AREA = .63 SQ MI

*** ***

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          **************
          *            *
 43 KK    *     COM29  *
          *            *
          **************
```

Combine flows at Anderson Springs Blvd.

45 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION COM29

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
595.	13.60	(CFS)	156.	48.	19.	19.
		(INCHES)	.685	.847	.847	.847
		(AC-FT)	77.	96.	96.	96.

CUMULATIVE AREA = 2.12 SQ MI

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          *            *
 46 KK    *     OPT21  *
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*            *
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Optimized combined hydrograph for Section 21 <AR.DAT>

SUBBASIN RUNOFF DATA

48 BA SUBBASIN CHARACTERISTICS

TAREA 1.45 SUBBASIN AREA

PRECIPITATION DATA

10 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 40.00

49 LS SCS LOSS RATE

STRTL 1.22 INITIAL ABSTRACTION
CRVNBR 77.50 CURVE NUMBER
RTIMP .00 PERCENT IMPERVIOUS AREA

50 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 1.16 LAG

***

UNIT HYDROGRAPH
31 END-OF-PERIOD ORDINATES

40.	117.	240.	398.	513.	553.	547.	490.	418.	320.
238.	182.	143.	111.	85.	66.	51.	39.	30.	23.
18.	14.	11.	8.	6.	5.	4.	3.	2.	1.
0.									

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

HYDROGRAPH AT STATION OPT21

TOTAL RAINFALL = 3.55, TOTAL LOSS = 2.51, TOTAL EXCESS = 1.04

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
335.	13.60	(CFS)	134.	40.	16.	16.
		(INCHES)	.860	1.037	1.037	1.037
		(AC-FT)	67.	80.	80.	80.

CUMULATIVE AREA = 1.45 SQ MI

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***************
*             *
51 KK   *   ROPT21   *
*             *
***************
```

Route Optimized hydrograph to Dobson and Ray Rds.

HYDROGRAPH ROUTING DATA

53 RK KINEMATIC WAVE STREAM ROUTING

L	2640.	CHANNEL LENGTH
S	.0010	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	50.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.50	1.33	2.58	528.00	335.33	824.61	1.04	3.41

CONTINUITY SUMMARY (AC-FT) - INFLOW= 80.212 EXCESS= .000 OUTFLOW= 80.092 BASIN STORAGE= .000 PERCENT ERROR= .150

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.50	1.33	12.00	334.96	816.00	1.04

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

HYDROGRAPH AT STATION ROPT21

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
335.	13.60	(CFS)	134.	40.	16.	16.
		(INCHES)	.858	1.036	1.036	1.036
		(AC-FT)	66.	80.	80.	80.

CUMULATIVE AREA = 1.45 SQ MI

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          **************
          *            *
54 KK     *       R21  *
          *            *
          **************
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Route flows to Chandler and Dobson

HYDROGRAPH ROUTING DATA

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56 RK          KINEMATIC WAVE STREAM ROUTING
                        L       5280.  CHANNEL LENGTH
                        S       .0009  SLOPE
                        N        .016  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .00  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD         .00  BOTTOM WIDTH OR DIAMETER
                        Z       50.00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
                ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)      (FT)    (CFS)    (MIN)      (IN)      (FPS)

                   3        .48     1.33      2.68    528.00    334.78    840.86      1.03      3.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=   80.126  EXCESS=     .000 OUTFLOW=   79.968 BASIN STORAGE=     .000 PERCENT ERROR=     .196

                                  INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   3        .48     1.33     12.00              333.39    840.00      1.03

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

                     HYDROGRAPH AT STATION      R21

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                  6-HR      24-HR      72-HR     59.80-HR
   333.       14.00        (CFS)     132.        40.        16.         16.
                         (INCHES)    .846      1.033      1.033       1.033
                          (AC-FT)     65.        80.        80.         80.

                      CUMULATIVE AREA =    1.45 SQ MI


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


          **************
          *            *
57 KK     *      C21   *
          *            *
          **************
                         Combine flows at Dobson and Chandler

59 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

    ***            ***            ***            ***            ***
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HYDROGRAPH AT STATION C21

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
841.	13.80	(CFS)	288.	89.	36.	36.
		(INCHES)	.750	.923	.923	.923
		(AC-FT)	143.	176.	176.	176.

CUMULATIVE AREA = 3.57 SQ MI

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          **************
          *            *
 60 KK    *      RR21  *
          *            *
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Route flows from Dobson to Price along Chandler

HYDROGRAPH ROUTING DATA

62 RK KINEMATIC WAVE STREAM ROUTING

L	5280.	CHANNEL LENGTH
S	.0017	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	50.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.66	1.33	2.40	754.29	838.84	840.52	.92	5.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= 175.722 EXCESS= .000 OUTFLOW= 175.285 BASIN STORAGE= .000 PERCENT ERROR= .248

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.66	1.33	12.00	838.37	840.00	.91

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

HYDROGRAPH AT STATION RR21

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

(CFS)	(HR)		6-HR	24-HR	72-HR	59.80-HR
838.	14.00	(CFS)	280.	88.	35.	35.
		(INCHES)	.730	.913	.913	.913
		(AC-FT)	139.	174.	174.	174.

CUMULATIVE AREA = 3.57 SQ MI

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          **************
          *            *
63 KK     *   OPT30B   *
          *            *
          **************
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Optimized Combined Hydrograph for Section 30 (South half) <PC.DAT>

SUBBASIN RUNOFF DATA

65 BA SUBBASIN CHARACTERISTICS

TAREA .41 SUBBASIN AREA

PRECIPITATION DATA

10 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 40.00

66 LS SCS LOSS RATE

STRTL .92 INITIAL ABSTRACTION

CRVNBR 69.80 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

67 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .85 LAG

***

UNIT HYDROGRAPH

23 END-OF-PERIOD ORDINATES

23.	72.	148.	199.	208.	185.	147.	99.	70.	50.
36.	25.	18.	13.	9.	6.	5.	3.	2.	2.
1.	1.	0.							

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

HYDROGRAPH AT STATION OPT30B

TOTAL RAINFALL = 3.55, TOTAL LOSS = 2.56, TOTAL EXCESS = .99

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	59.80-HR
118.	13.20	(CFS)	37.	11.	4.	4.
		(INCHES)	.846	.994	.994	.994

```
                    (AC-FT)       18.         22.         22.         22.

                    CUMULATIVE AREA =     .41 SQ MI


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


          **************
          *            *
 68 KK    *      C30B  *
          *            *
          **************
                              Combine flows at Chandler and Price

 70 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION     C30B

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
 (CFS)        (HR)                 6-HR       24-HR       72-HR     59.80-HR
   897.      14.00       (CFS)     303.         99.         40.         40.
                       (INCHES)    .708        .921        .921        .921
                        (AC-FT)    150.        196.        196.        196.

                    CUMULATIVE AREA =    3.98 SQ MI


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


          **************
          *            *
 71 KK    *    OPT30A  *
          *            *
          **************
                              Optimized combined hydrograph for Section 30 (North half) <PG.DAT>

            SUBBASIN RUNOFF DATA

 73 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .39  SUBBASIN AREA

                PRECIPITATION DATA

 10 PH                                 DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00
```

```
74 LS          SCS LOSS RATE
                    STRTL        .60  INITIAL ABSTRACTION
                   CRVNBR      63.10  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

75 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        .90  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          24 END-OF-PERIOD ORDINATES
            19.      58.     125.     175.     189.     175.     147.     106.      74.      53.
            39.      28.      20.      15.      10.       8.       5.       4.       3.       2.
             2.       1.       1.       0.

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

                     HYDROGRAPH AT STATION   OPT30A

  TOTAL RAINFALL =    3.55, TOTAL LOSS =    2.56, TOTAL EXCESS =     .99

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
 (CFS)        (HR)                  6-HR       24-HR       72-HR     59.80-HR
  111.       13.20        (CFS)      36.         10.          4.          4.
                        (INCHES)    .850        .989        .989        .989
                         (AC-FT)     18.         21.         21.         21.

                       CUMULATIVE AREA =     .39 SQ MI


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


          **************
          *            *
76 KK     *      BASG  *
          *            *
          **************
                         Combine flows into Galveston Regional Basin

78 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          1  PRINT CONTROL
                    IPLOT          2  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         60  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        300  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .200  TIME INTERVAL IN HOURS


79 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***
```

HYDROGRAPH AT STATION BASG
SUM OF 2 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		1500	76	562.	2		0600	151	3.	2		2100	226	0.
1		0012	2	0.	1		1512	77	487.	2		0612	152	2.	2		2112	227	0.
1		0024	3	0.	1		1524	78	424.	2		0624	153	2.	2		2124	228	0.
1		0036	4	0.	1		1536	79	373.	2		0636	154	2.	2		2136	229	0.
1		0048	5	0.	1		1548	80	330.	2		0648	155	2.	2		2148	230	0.
1		0100	6	0.	1		1600	81	294.	2		0700	156	1.	2		2200	231	0.
1		0112	7	0.	1		1612	82	263.	2		0712	157	1.	2		2212	232	0.
1		0124	8	0.	1		1624	83	236.	2		0724	158	1.	2		2224	233	0.
1		0136	9	0.	1		1636	84	213.	2		0736	159	1.	2		2236	234	0.
1		0148	10	0.	1		1648	85	193.	2		0748	160	1.	2		2248	235	0.
1		0200	11	0.	1		1700	86	175.	2		0800	161	1.	2		2300	236	0.
1		0212	12	0.	1		1712	87	159.	2		0812	162	1.	2		2312	237	0.
1		0224	13	0.	1		1724	88	146.	2		0824	163	1.	2		2324	238	0.
1		0236	14	0.	1		1736	89	135.	2		0836	164	1.	2		2336	239	0.
1		0248	15	0.	1		1748	90	125.	2		0848	165	1.	2		2348	240	0.
1		0300	16	0.	1		1800	91	117.	2		0900	166	1.	3		0000	241	0.
1		0312	17	0.	1		1812	92	110.	2		0912	167	0.	3		0012	242	0.
1		0324	18	0.	1		1824	93	104.	2		0924	168	0.	3		0024	243	0.
1		0336	19	0.	1		1836	94	99.	2		0936	169	0.	3		0036	244	0.
1		0348	20	0.	1		1848	95	94.	2		0948	170	0.	3		0048	245	0.
1		0400	21	0.	1		1900	96	91.	2		1000	171	0.	3		0100	246	0.
1		0412	22	0.	1		1912	97	88.	2		1012	172	0.	3		0112	247	0.
1		0424	23	0.	1		1924	98	86.	2		1024	173	0.	3		0124	248	0.
1		0436	24	0.	1		1936	99	84.	2		1036	174	0.	3		0136	249	0.
1		0448	25	0.	1		1948	100	82.	2		1048	175	0.	3		0148	250	0.
1		0500	26	0.	1		2000	101	81.	2		1100	176	0.	3		0200	251	0.
1		0512	27	0.	1		2012	102	80.	2		1112	177	0.	3		0212	252	0.
1		0524	28	0.	1		2024	103	79.	2		1124	178	0.	3		0224	253	0.
1		0536	29	0.	1		2036	104	79.	2		1136	179	0.	3		0236	254	0.
1		0548	30	0.	1		2048	105	78.	2		1148	180	0.	3		0248	255	0.
1		0600	31	0.	1		2100	106	77.	2		1200	181	0.	3		0300	256	0.
1		0612	32	0.	1		2112	107	76.	2		1212	182	0.	3		0312	257	0.
1		0624	33	0.	1		2124	108	75.	2		1224	183	0.	3		0324	258	0.
1		0636	34	0.	1		2136	109	74.	2		1236	184	0.	3		0336	259	0.
1		0648	35	0.	1		2148	110	73.	2		1248	185	0.	3		0348	260	0.
1		0700	36	0.	1		2200	111	72.	2		1300	186	0.	3		0400	261	0.
1		0712	37	0.	1		2212	112	71.	2		1312	187	0.	3		0412	262	0.
1		0724	38	0.	1		2224	113	69.	2		1324	188	0.	3		0424	263	0.
1		0736	39	0.	1		2236	114	68.	2		1336	189	0.	3		0436	264	0.
1		0748	40	0.	1		2248	115	67.	2		1348	190	0.	3		0448	265	0.
1		0800	41	0.	1		2300	116	66.	2		1400	191	0.	3		0500	266	0.
1		0812	42	0.	1		2312	117	65.	2		1412	192	0.	3		0512	267	0.
1		0824	43	0.	1		2324	118	64.	2		1424	193	0.	3		0524	268	0.
1		0836	44	0.	1		2336	119	63.	2		1436	194	0.	3		0536	269	0.
1		0848	45	0.	1		2348	120	62.	2		1448	195	0.	3		0548	270	0.
1		0900	46	0.	2		0000	121	61.	2		1500	196	0.	3		0600	271	0.
1		0912	47	0.	2		0012	122	60.	2		1512	197	0.	3		0612	272	0.
1		0924	48	0.	2		0024	123	58.	2		1524	198	0.	3		0624	273	0.
1		0936	49	0.	2		0036	124	57.	2		1536	199	0.	3		0636	274	0.
1		0948	50	0.	2		0048	125	54.	2		1548	200	0.	3		0648	275	0.
1		1000	51	0.	2		0100	126	52.	2		1600	201	0.	3		0700	276	0.

1	1012	52	0.	*	2	0112	127	49.	*	2	1612	202	0.	*	3	0712	277	0.
1	1024	53	0.	*	2	0124	128	46.	*	2	1624	203	0.	*	3	0724	278	0.
1	1036	54	0.	*	2	0136	129	42.	*	2	1636	204	0.	*	3	0736	279	0.
1	1048	55	0.	*	2	0148	130	39.	*	2	1648	205	0.	*	3	0748	280	0.
1	1100	56	0.	*	2	0200	131	36.	*	2	1700	206	0.	*	3	0800	281	0.
1	1112	57	0.	*	2	0212	132	32.	*	2	1712	207	0.	*	3	0812	282	0.
1	1124	58	0.	*	2	0224	133	29.	*	2	1724	208	0.	*	3	0824	283	0.
1	1136	59	0.	*	2	0236	134	25.	*	2	1736	209	0.	*	3	0836	284	0.
1	1148	60	1.	*	2	0248	135	22.	*	2	1748	210	0.	*	3	0848	285	0.
1	1200	61	4.	*	2	0300	136	19.	*	2	1800	211	0.	*	3	0900	286	0.
1	1212	62	24.	*	2	0312	137	17.	*	2	1812	212	0.	*	3	0912	287	0.
1	1224	63	65.	*	2	0324	138	15.	*	2	1824	213	0.	*	3	0924	288	0.
1	1236	64	130.	*	2	0336	139	13.	*	2	1836	214	0.	*	3	0936	289	0.
1	1248	65	190.	*	2	0348	140	11.	*	2	1848	215	0.	*	3	0948	290	0.
1	1300	66	224.	*	2	0400	141	10.	*	2	1900	216	0.	*	3	1000	291	0.
1	1312	67	228.	*	2	0412	142	8.	*	2	1912	217	0.	*	3	1012	292	0.
1	1324	68	210.	*	2	0424	143	7.	*	2	1924	218	0.	*	3	1024	293	0.
1	1336	69	175.	*	2	0436	144	6.	*	2	1936	219	0.	*	3	1036	294	0.
1	1348	70	397.	*	2	0448	145	6.	*	2	1948	220	0.	*	3	1048	295	0.
1	1400	71	954.	*	2	0500	146	5.	*	2	2000	221	0.	*	3	1100	296	0.
1	1412	72	905.	*	2	0512	147	4.	*	2	2012	222	0.	*	3	1112	297	0.
1	1424	73	843.	*	2	0524	148	4.	*	2	2024	223	0.	*	3	1124	298	0.
1	1436	74	750.	*	2	0536	149	3.	*	2	2036	224	0.	*	3	1136	299	0.
1	1448	75	651.	*	2	0548	150	3.	*	2	2048	225	0.	*	3	1148	300	0.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
954.	14.00	(CFS)	336.	109.	44.	44.
		(INCHES)	.715	.927	.927	.927
		(AC-FT)	167.	216.	216.	216.

CUMULATIVE AREA = 4.37 SQ MI

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

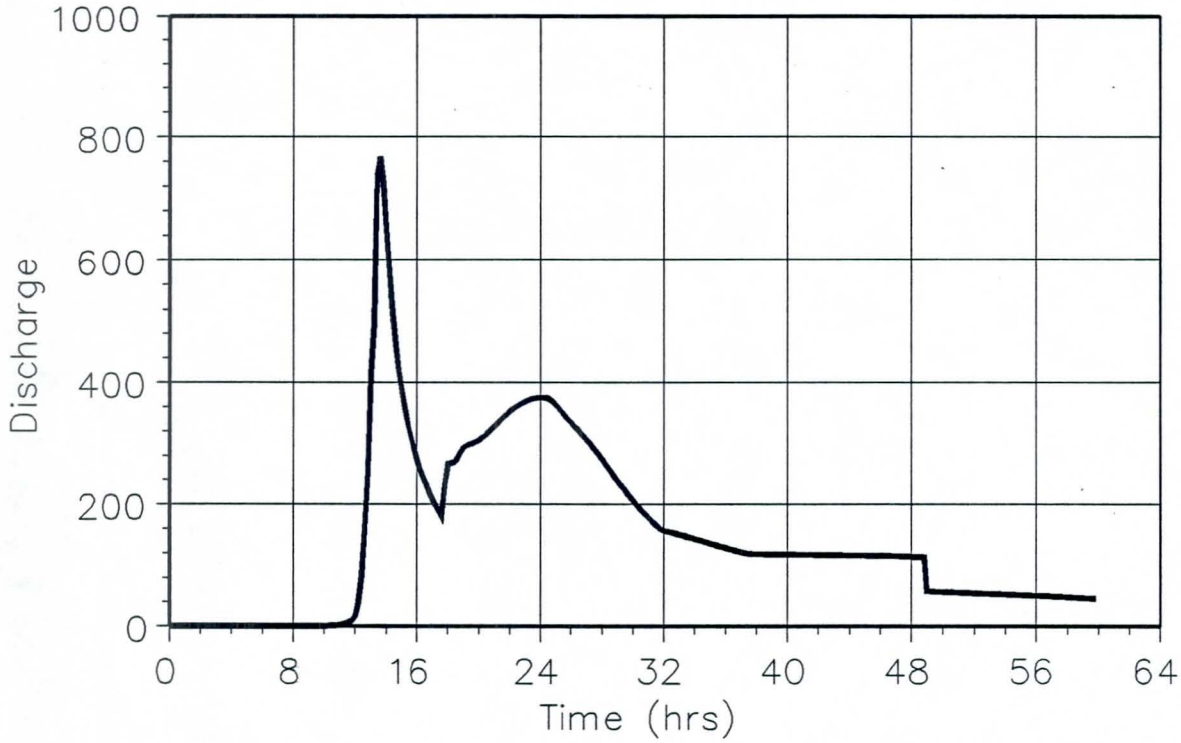
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	OPT28	734.	13.00	197.	55.	22.	1.00		
ROUTED TO	GALVB	601.	13.40	130.	38.	15.	1.00		
ROUTED TO	RGALV	594.	13.60	128.	38.	15.	1.00		
HYDROGRAPH AT	OPT29A	270.	13.00	70.	20.	8.	.49		
ROUTED TO	ARROB	75.	14.20	23.	8.	3.	.49		
ROUTED TO	RARRO	71.	14.20	23.	8.	3.	.49		
HYDROGRAPH AT	OPT29B	8.	16.40	6.	3.	1.	.63		
ROUTED TO	R29	8.	16.80	6.	3.	1.	.63		
3 COMBINED AT	COM29	595.	13.60	156.	48.	19.	2.12		
HYDROGRAPH AT	OPT21	335.	13.60	134.	40.	16.	1.45		
ROUTED TO	ROPT21	335.	13.60	134.	40.	16.	1.45		
ROUTED TO	R21	333.	14.00	132.	40.	16.	1.45		
2 COMBINED AT	C21	841.	13.80	288.	89.	36.	3.57		
ROUTED TO	RR21	838.	14.00	280.	88.	35.	3.57		
HYDROGRAPH AT	OPT30B	118.	13.20	37.	11.	4.	.41		
2 COMBINED AT	C30B	897.	14.00	303.	99.	40.	3.98		
HYDROGRAPH AT	OPT30A	111.	13.20	36.	10.	4.	.39		
2 COMBINED AT	BASG	954.	14.00	336.	109.	44.	4.37		

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RGALV	3	2.23	600.42	821.08	1.40	12.00	594.11	816.00	1.40
CONTINUITY SUMMARY (AC-FT) - INFLOW=		74.857	EXCESS=	.000	OUTFLOW=	74.430	BASIN STORAGE=	.000	PERCENT ERROR= .571
RARRO	3	1.44	75.32	854.78	.59	12.00	70.69	852.00	.59
CONTINUITY SUMMARY (AC-FT) - INFLOW=		15.410	EXCESS=	.000	OUTFLOW=	15.389	BASIN STORAGE=	.000	PERCENT ERROR= .133
R29	3	6.81	8.22	1002.40	.16	12.00	8.22	1008.00	.16
CONTINUITY SUMMARY (AC-FT) - INFLOW=		5.545	EXCESS=	.000	OUTFLOW=	5.540	BASIN STORAGE=	.000	PERCENT ERROR= .080
ROPT21	3	2.58	335.33	824.61	1.04	12.00	334.96	816.00	1.04
CONTINUITY SUMMARY (AC-FT) - INFLOW=		80.212	EXCESS=	.000	OUTFLOW=	80.092	BASIN STORAGE=	.000	PERCENT ERROR= .150
R21	3	2.68	334.78	840.86	1.03	12.00	333.39	840.00	1.03
CONTINUITY SUMMARY (AC-FT) - INFLOW=		80.126	EXCESS=	.000	OUTFLOW=	79.968	BASIN STORAGE=	.000	PERCENT ERROR= .196
RR21	3	2.40	838.84	840.52	.92	12.00	838.37	840.00	.91
CONTINUITY SUMMARY (AC-FT) - INFLOW=		175.722	EXCESS=	.000	OUTFLOW=	175.285	BASIN STORAGE=	.000	PERCENT ERROR= .248

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

Outlet H - Model



Location: Price Expressway and Santan Freeway Interchange
Volume: 732 Acre-Feet
Peak Q: 767 Cubic Feet per Second

OUTLET H INFLOW HYDROGRAPH

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASINH

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****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  08/15/1989  TIME  14:30:09 *
*                                      *
****************************************
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****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
* THE HYDROLOGIC ENGINEERING CENTER    *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*                                      *
*                                      *
****************************************
```

```
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
```

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:::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::
:::                                     :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION  :::
:::                                     :::
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:::::::::::::::::::::::::::::::::::::::::::
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H A E S T A D   M E T H O D S
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

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

  1           ID        Price  Road  Offsite Hydrology -                          <BASINH>
  2           ID        Flows to Price Road Regional Basin 'H'
  3           ID        Initial abstration used. Denver Basin modeled
  4           ID        100-Year 24-Hour Storm - June 8,1989   HDR - PHX
              *DIAGRAM
  5           IT      12                    300
  6           IO       3       0       0
  7           IN      12                    300
              *

  8           KK    PT2D
  9           KM        SPRR Overflow from east of tracks at Detroit Basin
 10           BA    2.53
 11           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 12           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 13           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 14           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 15           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 16           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 17           QI    0.00    0.00    0.00    0.00    3.58   11.60   20.60   27.81   34.76   40.53
 18           QI   45.04   49.00   52.51   55.67   58.55   60.37   61.12   61.79   62.40   62.94
 19           QI   68.28   77.66   85.63   92.38   98.08  105.91  120.89  130.76  137.11  141.48
 20           QI  144.93  148.17  151.86  156.30  161.36  166.97  173.23  180.09  187.26  194.44
 21           QI  201.41  208.05  214.25  220.02  225.42  230.52  235.29  239.65  243.56  247.00
 22           QI  249.97  252.49  254.57  256.26  257.58  258.56  259.23  259.63  259.78  259.71
 23           QI  259.44  258.96  258.20  256.99  255.19  252.71  249.56  245.77  241.42  236.56
 24           QI  231.24  225.48  219.32  212.82  206.04  199.14  192.24  185.41  178.64  171.93
 25           QI  165.28  158.70  152.21  145.81  139.54  133.42  127.48  121.73  116.18  110.88
 26           QI  105.90  101.68  100.60   99.44   98.21   96.92   95.56   94.17   92.73   91.25
 27           QI   89.75   88.23   86.70   85.15   83.60   82.05   80.50   78.96   77.44   75.92
 28           QI   74.42   72.95   71.49   70.06   68.65   67.27   65.92   64.60   63.31   63.15
 29           QI   63.09   63.03   62.97   62.91   62.85   62.79   62.73   62.67   62.61   62.54
 30           QI   62.48   62.42   62.35   62.29   62.22   62.16   62.09   62.02   61.96   61.89
 31           QI   61.82   61.76   61.69   61.62   61.55   61.48   61.41   61.34   61.27   61.20
 32           QI   61.13   61.06   60.99   60.92   60.85   60.78   60.71   60.64   60.57   60.49
 33           QI   60.42   60.35   60.28   60.21   60.13   60.06   59.96   59.72   59.49   59.25
 34           QI   59.02   58.78   58.55   58.32   58.09   57.86   57.63   57.41   57.18   56.95
 35           QI   56.73   56.51   56.29   56.06   55.84   55.63   55.41   55.19   54.97   54.76
 36           QI   54.55   54.33   54.12   53.91   53.70   53.49   53.28   53.08   52.87   52.67
 37           QI   52.46   52.26   52.06   51.86   51.66   51.46   51.26   51.07   50.87   50.68
 38           QI   50.47   50.26   50.04   49.81   49.57   49.32   49.07   48.80   48.54   48.27
 39           QI   47.99   47.71   47.43   47.14   46.86   46.56   46.27   45.98   45.68   45.39
 40           QI   45.09   44.79   44.49   44.19   43.89   43.59   43.30   43.00   42.70   42.40
              *

 41           KK   RPT2D
 42           KM        Route Detriot Basin overflows from SPRR tracks to Denver Basin
 43           RK    6600  0.0011   0.016            TRAP     0.0    25.0
              *
```

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

  44          KK   OPT33
  45          KM        Optimized basin inflow into Denver Regional Basin  <DRB1.DAT>
  46          KO       1       2
  47          PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
  48          BA    0.58
  49          LS    1.10    95.0
  50          UD    0.86
              *

  51          KK  COPT33
  52          KM        Combine flows from section 33 and overflow from Detriot basin
  53          HC       2
              *

  54          KK   DENRB
  55          KM        Divert flows into Denver Retention Basin
  56          RS       1    STOR     0.0
  57          SV       0    62.3    62.6    62.9    63.5    65.0    67.7
  58          SQ       0     0.0      44      87     202     392     784
              *

  59          KK  OPT33B
  60          KM        Optimized flows from d/s of Denver Regional Basin
  61          BA    0.24
  62          LS    0.40    90.8
  63          UD    0.57
              *

  64          KK     C33
  65          KM        Combine flows AT Denver Retention Basin (INCLUDES BASIN BYPASS FLOWS)
  66          HC       2
              *

  67          KK    R33A
  68          KM        Route Denver Regional Basin bypass flows to Pecos and Hartford St.
  69          RK    1300  0.0004   0.016            TRAP     0.0    25.0
              *

  70          KK    R33B
  71          KM        Route Denver Regional Basin bypass and outflows from Hartford St. to
  72          KM        Price Road along Pecos Road
  73          RK   13200  0.0020   0.016            TRAP     0.0    25.0
              *

  74          KK  OPT31C
  75          KM        Optimized single basin for sections 31-33 (South 1/4 Section)
  76          BA    0.69
  77          LS    0.32    75.0
  78          UD    1.10
              *
```

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

 79           KK    C31C
 80           KM        Combine flows along Pecos at Price Road
 81           HC       2
              *

 82           KK  OPT456
 83           KM        Optimized hydrograph for sections 4,5 & 6 (north 1/4)
 84           BA    0.77
 85           LS     1.5      81
 86           UD    3.15
              *

 87           KK    C456
 88           KM        Combine flows at Price Road and Pecos
 89           HC       2
              *

 90           KK  OPT31A
 91           KM        Optimized combined hydrograph for N 1/3 of Section 31
 92           BA    0.55
 93           LS    2.64    95.0
 94           UD    0.34
              *

 95           KK  ROPT31
 96           KM        Route optimized hydrograph to OPT31B <PP.DAT>
 97           RK    2500  0.0015    .016            TRAP     0.0    25.0
              *

 98           KK  OPT31B
 99           KM        Optimized basin for Section 31 (middle 1/3) <PCH.DAT>
100           BA    1.40
101           LS    1.90    79.4
102           UD    1.20
              *

103           KK    C31B
104           KM        Combine flows 1000 ft. N. of Basin H
105           HC       2
              *

106           KK    ROPT
107           KM        Route optimized hydrograph to proposed Interchange Basin <PF.DAT>
108           RK    1000    .001    .016            TRAP     0.0    50.0
              *

109           KK  CHNDLR
110           KM        Pumped outflow from Chandler Basins (Galveston, Arrowhead and Denver)
111           BA   0.001
112           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
113           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
114           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
115           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
116           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
```

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

 117          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 118          QI    0.00    0.00    0.00    0.00    0.00    55.0    55.0    55.0    55.0    55.0
 119          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 120          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 121          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 122          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 123          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 124          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 125          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 126          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 127          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 128          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 129          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 130          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 131          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 132          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 133          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 134          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 135          QI    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0    55.0
 136          QI    55.0    55.0    55.0    55.0    55.0    0.00    0.00    0.00    0.00    0.00
 137          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 138          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 139          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 140          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
 141          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
              *

 142          KK    BASH
 143          KM        Combine Chandler pumped outflow from basins to inflow at Price Regional
 144          KM        Basin H
 145          KO      1       2                   60
 146          HC      3
              *
 147          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  8         PT2D
              V
              V
 41        RPT2D
              .
              .
 44           .       OPT33
              .          .
              .          .
 51       COPT33............
              V
              V
 54        DENRB
              .
              .
 59           .      OPT33B
              .          .
              .          .
 64         C33............
              V
              V
 67        R33A
              V
              V
 70        R33B
              .
              .
 74           .      OPT31C
              .          .
              .          .
 79        C31C............
              .
              .
 82           .      OPT456
              .          .
              .          .
 87        C456............
              .
              .
 90           .      OPT31A
              .          V
              .          V
 95           .      ROPT31
              .          .
              .          .
 98           .          .     OPT31B
              .          .        .
              .          .        .
103           .       C31B............
              .          V
              .          V
106           .       ROPT
              .          .
```

```
              .          .
109           .          .      CHNDLR
              .          .          .
              .          .          .
142        BASH.......................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: BASINH

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  08/15/1989  TIME  14:30:09 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
* THE HYDROLOGIC ENGINEERING CENTER    *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*                                      *
*                                      *
****************************************
```

Price Road Offsite Hydrology - <BASINH>
Flows to Price Road Regional Basin 'H'
Initial abstration used. Denver Basin modeled
100-Year 24-Hour Storm - June 8,1989 HDR - PHX

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

    IT        HYDROGRAPH TIME DATA
                     NMIN         12  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      3    0  ENDING DATE
                   NDTIME       1148  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .20 HOURS
                   TOTAL TIME BASE   59.80 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
```

*** ***

```
          **************
          *            *
  8 KK    *      PT2D  *
          *            *
          **************
```

SPRR Overflow from east of tracks at Detroit Basin

```
 7 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          12  TIME INTERVAL IN MINUTES
                   JXDATE      1    0  STARTING DATE
                   JXTIME           0  STARTING TIME

            SUBBASIN RUNOFF DATA

10 BA          SUBBASIN CHARACTERISTICS
                    TAREA        2.53  SUBBASIN AREA

                                                        ***

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

                      HYDROGRAPH AT STATION     PT2D

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
   260.     23.60        (CFS)     247.        143.         78.         78.
                       (INCHES)    .906       2.107       2.854       2.854
                        (AC-FT)    122.        284.        385.        385.

                      CUMULATIVE AREA =    2.53 SQ MI


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


          **************
          *            *
 41 KK    *     RPT2D  *
          *            *
          **************
                          Route Detriot Basin overflows from SPRR tracks to Denver Basin

            HYDROGRAPH ROUTING DATA

 43 RK          KINEMATIC WAVE STREAM ROUTING
                         L       6600.  CHANNEL LENGTH
                         S      .0011  SLOPE
                         N       .016  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .00  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD        .00  BOTTOM WIDTH OR DIAMETER
                         Z      25.00  SIDE SLOPE
                     DXMIN          2  MINIMUM NUMBER OF DX INTERVALS

                                                        ***
                                  COMPUTED KINEMATIC PARAMETERS
                                       VARIABLE TIME STEP
                                     (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                            PEAK                  CELERITY
                                                (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                    3        .67      1.33      1.11    264.00    259.78   1442.92      2.83      3.95
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=  385.096  EXCESS=     .000 OUTFLOW=  381.829 BASIN STORAGE=    3.273 PERCENT ERROR=    -.002

                                    INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3        .67      1.33      12.00            259.75   1440.00      2.83

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

                     HYDROGRAPH AT STATION    RPT2D

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
    260.      24.00       (CFS)     247.        143.         77.         77.
                         (INCHES)   .906       2.107       2.829       2.829
                          (AC-FT)   122.        284.        382.        382.

                         CUMULATIVE AREA =    2.53 SQ MI


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


          **************
          *            *
 44 KK    *     OPT33  *
          *            *
          **************
                          Optimized basin inflow into Denver Regional Basin  <DRB1.DAT>

 46 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           1  PRINT CONTROL
                      IPLOT           2  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

             SUBBASIN RUNOFF DATA

 48 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .58  SUBBASIN AREA

                PRECIPITATION DATA

 47 PH                                DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

 49 LS          SCS LOSS RATE
                      STRTL        1.10  INITIAL ABSTRACTION
                     CRVNBR       95.00  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 50 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG         .86  LAG
```

***

UNIT HYDROGRAPH
24 END-OF-PERIOD ORDINATES

31.	98.	204.	277.	291.	261.	211.	144.	101.	73.
52.	37.	27.	19.	13.	10.	7.	5.	3.	3.
2.	1.	1.	0.						

****

HYDROGRAPH AT STATION OPT33

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	*	2		0600	151	.00	.00	.00	0.
1		0012	2	.01	.01	.00	0.	*	2		0612	152	.00	.00	.00	0.
1		0024	3	.01	.01	.00	0.	*	2		0624	153	.00	.00	.00	0.
1		0036	4	.01	.01	.00	0.	*	2		0636	154	.00	.00	.00	0.
1		0048	5	.01	.01	.00	0.	*	2		0648	155	.00	.00	.00	0.
1		0100	6	.01	.01	.00	0.	*	2		0700	156	.00	.00	.00	0.
1		0112	7	.01	.01	.00	0.	*	2		0712	157	.00	.00	.00	0.
1		0124	8	.01	.01	.00	0.	*	2		0724	158	.00	.00	.00	0.
1		0136	9	.01	.01	.00	0.	*	2		0736	159	.00	.00	.00	0.
1		0148	10	.01	.01	.00	0.	*	2		0748	160	.00	.00	.00	0.
1		0200	11	.01	.01	.00	0.	*	2		0800	161	.00	.00	.00	0.
1		0212	12	.01	.01	.00	0.	*	2		0812	162	.00	.00	.00	0.
1		0224	13	.01	.01	.00	0.	*	2		0824	163	.00	.00	.00	0.
1		0236	14	.01	.01	.00	0.	*	2		0836	164	.00	.00	.00	0.
1		0248	15	.01	.01	.00	0.	*	2		0848	165	.00	.00	.00	0.
1		0300	16	.01	.01	.00	0.	*	2		0900	166	.00	.00	.00	0.
1		0312	17	.01	.01	.00	0.	*	2		0912	167	.00	.00	.00	0.
1		0324	18	.01	.01	.00	0.	*	2		0924	168	.00	.00	.00	0.
1		0336	19	.01	.01	.00	0.	*	2		0936	169	.00	.00	.00	0.
1		0348	20	.01	.01	.00	0.	*	2		0948	170	.00	.00	.00	0.
1		0400	21	.01	.01	.00	0.	*	2		1000	171	.00	.00	.00	0.
1		0412	22	.01	.01	.00	0.	*	2		1012	172	.00	.00	.00	0.
1		0424	23	.01	.01	.00	0.	*	2		1024	173	.00	.00	.00	0.
1		0436	24	.01	.01	.00	0.	*	2		1036	174	.00	.00	.00	0.
1		0448	25	.01	.01	.00	0.	*	2		1048	175	.00	.00	.00	0.
1		0500	26	.01	.01	.00	0.	*	2		1100	176	.00	.00	.00	0.
1		0512	27	.01	.01	.00	0.	*	2		1112	177	.00	.00	.00	0.
1		0524	28	.01	.01	.00	0.	*	2		1124	178	.00	.00	.00	0.
1		0536	29	.01	.01	.00	0.	*	2		1136	179	.00	.00	.00	0.
1		0548	30	.01	.01	.00	0.	*	2		1148	180	.00	.00	.00	0.
1		0600	31	.01	.01	.00	0.	*	2		1200	181	.00	.00	.00	0.
1		0612	32	.01	.01	.00	0.	*	2		1212	182	.00	.00	.00	0.
1		0624	33	.01	.01	.00	0.	*	2		1224	183	.00	.00	.00	0.
1		0636	34	.01	.01	.00	0.	*	2		1236	184	.00	.00	.00	0.
1		0648	35	.01	.01	.00	0.	*	2		1248	185	.00	.00	.00	0.
1		0700	36	.01	.01	.00	0.	*	2		1300	186	.00	.00	.00	0.
1		0712	37	.01	.01	.00	0.	*	2		1312	187	.00	.00	.00	0.
1		0724	38	.01	.01	.00	0.	*	2		1324	188	.00	.00	.00	0.
1		0736	39	.01	.01	.00	0.	*	2		1336	189	.00	.00	.00	0.
1		0748	40	.01	.01	.00	0.	*	2		1348	190	.00	.00	.00	0.
1		0800	41	.01	.01	.00	0.	*	2		1400	191	.00	.00	.00	0.
1		0812	42	.01	.01	.00	0.	*	2		1412	192	.00	.00	.00	0.
1		0824	43	.01	.01	.00	0.	*	2		1424	193	.00	.00	.00	0.
1		0836	44	.01	.01	.00	0.	*	2		1436	194	.00	.00	.00	0.

1	0848	45	.01	.01	.00	0.	*	2	1448	195	.00	.00	.00	0.
1	0900	46	.01	.01	.00	0.	*	2	1500	196	.00	.00	.00	0.
1	0912	47	.02	.02	.00	0.	*	2	1512	197	.00	.00	.00	0.
1	0924	48	.02	.02	.00	0.	*	2	1524	198	.00	.00	.00	0.
1	0936	49	.02	.02	.00	0.	*	2	1536	199	.00	.00	.00	0.
1	0948	50	.02	.02	.00	0.	*	2	1548	200	.00	.00	.00	0.
1	1000	51	.02	.02	.00	0.	*	2	1600	201	.00	.00	.00	0.
1	1012	52	.02	.02	.00	0.	*	2	1612	202	.00	.00	.00	0.
1	1024	53	.03	.03	.00	0.	*	2	1624	203	.00	.00	.00	0.
1	1036	54	.03	.03	.00	0.	*	2	1636	204	.00	.00	.00	0.
1	1048	55	.03	.03	.00	0.	*	2	1648	205	.00	.00	.00	0.
1	1100	56	.04	.04	.00	0.	*	2	1700	206	.00	.00	.00	0.
1	1112	57	.05	.05	.00	0.	*	2	1712	207	.00	.00	.00	0.
1	1124	58	.06	.06	.00	0.	*	2	1724	208	.00	.00	.00	0.
1	1136	59	.07	.07	.00	0.	*	2	1736	209	.00	.00	.00	0.
1	1148	60	.23	.23	.00	0.	*	2	1748	210	.00	.00	.00	0.
1	1200	61	.39	.29	.10	3.	*	2	1800	211	.00	.00	.00	0.
1	1212	62	.96	.19	.78	34.	*	2	1812	212	.00	.00	.00	0.
1	1224	63	.27	.02	.25	105.	*	2	1824	213	.00	.00	.00	0.
1	1236	64	.20	.01	.19	218.	*	2	1836	214	.00	.00	.00	0.
1	1248	65	.06	.00	.06	317.	*	2	1848	215	.00	.00	.00	0.
1	1300	66	.05	.00	.05	369.	*	2	1900	216	.00	.00	.00	0.
1	1312	67	.04	.00	.04	369.	*	2	1912	217	.00	.00	.00	0.
1	1324	68	.04	.00	.03	331.	*	2	1924	218	.00	.00	.00	0.
1	1336	69	.03	.00	.03	269.	*	2	1936	219	.00	.00	.00	0.
1	1348	70	.03	.00	.03	214.	*	2	1948	220	.00	.00	.00	0.
1	1400	71	.03	.00	.02	171.	*	2	2000	221	.00	.00	.00	0.
1	1412	72	.02	.00	.02	139.	*	2	2012	222	.00	.00	.00	0.
1	1424	73	.02	.00	.02	114.	*	2	2024	223	.00	.00	.00	0.
1	1436	74	.02	.00	.02	94.	*	2	2036	224	.00	.00	.00	0.
1	1448	75	.02	.00	.02	79.	*	2	2048	225	.00	.00	.00	0.
1	1500	76	.02	.00	.02	68.	*	2	2100	226	.00	.00	.00	0.
1	1512	77	.01	.00	.01	59.	*	2	2112	227	.00	.00	.00	0.
1	1524	78	.01	.00	.01	51.	*	2	2124	228	.00	.00	.00	0.
1	1536	79	.01	.00	.01	45.	*	2	2136	229	.00	.00	.00	0.
1	1548	80	.01	.00	.01	39.	*	2	2148	230	.00	.00	.00	0.
1	1600	81	.01	.00	.01	34.	*	2	2200	231	.00	.00	.00	0.
1	1612	82	.01	.00	.01	30.	*	2	2212	232	.00	.00	.00	0.
1	1624	83	.01	.00	.01	27.	*	2	2224	233	.00	.00	.00	0.
1	1636	84	.01	.00	.01	24.	*	2	2236	234	.00	.00	.00	0.
1	1648	85	.01	.00	.01	22.	*	2	2248	235	.00	.00	.00	0.
1	1700	86	.01	.00	.01	20.	*	2	2300	236	.00	.00	.00	0.
1	1712	87	.01	.00	.01	19.	*	2	2312	237	.00	.00	.00	0.
1	1724	88	.01	.00	.01	18.	*	2	2324	238	.00	.00	.00	0.
1	1736	89	.01	.00	.01	17.	*	2	2336	239	.00	.00	.00	0.
1	1748	90	.01	.00	.01	16.	*	2	2348	240	.00	.00	.00	0.
1	1800	91	.01	.00	.01	15.	*	3	0000	241	.00	.00	.00	0.
1	1812	92	.01	.00	.01	15.	*	3	0012	242	.00	.00	.00	0.
1	1824	93	.01	.00	.01	15.	*	3	0024	243	.00	.00	.00	0.
1	1836	94	.01	.00	.01	15.	*	3	0036	244	.00	.00	.00	0.
1	1848	95	.01	.00	.01	15.	*	3	0048	245	.00	.00	.00	0.
1	1900	96	.01	.00	.01	15.	*	3	0100	246	.00	.00	.00	0.
1	1912	97	.01	.00	.01	15.	*	3	0112	247	.00	.00	.00	0.
1	1924	98	.01	.00	.01	15.	*	3	0124	248	.00	.00	.00	0.
1	1936	99	.01	.00	.01	15.	*	3	0136	249	.00	.00	.00	0.
1	1948	100	.01	.00	.01	15.	*	3	0148	250	.00	.00	.00	0.
1	2000	101	.01	.00	.01	15.	*	3	0200	251	.00	.00	.00	0.
1	2012	102	.01	.00	.01	14.	*	3	0212	252	.00	.00	.00	0.
1	2024	103	.01	.00	.01	14.	*	3	0224	253	.00	.00	.00	0.
1	2036	104	.01	.00	.01	14.	*	3	0236	254	.00	.00	.00	0.

1	2048	105	.01	.00	.01	14.	*	3	0248	255	.00	.00	.00	0.
1	2100	106	.01	.00	.01	13.	*	3	0300	256	.00	.00	.00	0.
1	2112	107	.01	.00	.01	13.	*	3	0312	257	.00	.00	.00	0.
1	2124	108	.01	.00	.01	13.	*	3	0324	258	.00	.00	.00	0.
1	2136	109	.01	.00	.01	13.	*	3	0336	259	.00	.00	.00	0.
1	2148	110	.01	.00	.01	12.	*	3	0348	260	.00	.00	.00	0.
1	2200	111	.01	.00	.01	12.	*	3	0400	261	.00	.00	.00	0.
1	2212	112	.01	.00	.01	12.	*	3	0412	262	.00	.00	.00	0.
1	2224	113	.01	.00	.01	12.	*	3	0424	263	.00	.00	.00	0.
1	2236	114	.01	.00	.01	11.	*	3	0436	264	.00	.00	.00	0.
1	2248	115	.01	.00	.01	11.	*	3	0448	265	.00	.00	.00	0.
1	2300	116	.01	.00	.01	11.	*	3	0500	266	.00	.00	.00	0.
1	2312	117	.01	.00	.01	11.	*	3	0512	267	.00	.00	.00	0.
1	2324	118	.01	.00	.01	11.	*	3	0524	268	.00	.00	.00	0.
1	2336	119	.01	.00	.01	11.	*	3	0536	269	.00	.00	.00	0.
1	2348	120	.01	.00	.01	10.	*	3	0548	270	.00	.00	.00	0.
2	0000	121	.01	.00	.01	10.	*	3	0600	271	.00	.00	.00	0.
2	0012	122	.00	.00	.00	10.	*	3	0612	272	.00	.00	.00	0.
2	0024	123	.00	.00	.00	9.	*	3	0624	273	.00	.00	.00	0.
2	0036	124	.00	.00	.00	8.	*	3	0636	274	.00	.00	.00	0.
2	0048	125	.00	.00	.00	7.	*	3	0648	275	.00	.00	.00	0.
2	0100	126	.00	.00	.00	5.	*	3	0700	276	.00	.00	.00	0.
2	0112	127	.00	.00	.00	4.	*	3	0712	277	.00	.00	.00	0.
2	0124	128	.00	.00	.00	3.	*	3	0724	278	.00	.00	.00	0.
2	0136	129	.00	.00	.00	2.	*	3	0736	279	.00	.00	.00	0.
2	0148	130	.00	.00	.00	1.	*	3	0748	280	.00	.00	.00	0.
2	0200	131	.00	.00	.00	1.	*	3	0800	281	.00	.00	.00	0.
2	0212	132	.00	.00	.00	1.	*	3	0812	282	.00	.00	.00	0.
2	0224	133	.00	.00	.00	0.	*	3	0824	283	.00	.00	.00	0.
2	0236	134	.00	.00	.00	0.	*	3	0836	284	.00	.00	.00	0.
2	0248	135	.00	.00	.00	0.	*	3	0848	285	.00	.00	.00	0.
2	0300	136	.00	.00	.00	0.	*	3	0900	286	.00	.00	.00	0.
2	0312	137	.00	.00	.00	0.	*	3	0912	287	.00	.00	.00	0.
2	0324	138	.00	.00	.00	0.	*	3	0924	288	.00	.00	.00	0.
2	0336	139	.00	.00	.00	0.	*	3	0936	289	.00	.00	.00	0.
2	0348	140	.00	.00	.00	0.	*	3	0948	290	.00	.00	.00	0.
2	0400	141	.00	.00	.00	0.	*	3	1000	291	.00	.00	.00	0.
2	0412	142	.00	.00	.00	0.	*	3	1012	292	.00	.00	.00	0.
2	0424	143	.00	.00	.00	0.	*	3	1024	293	.00	.00	.00	0.
2	0436	144	.00	.00	.00	0.	*	3	1036	294	.00	.00	.00	0.
2	0448	145	.00	.00	.00	0.	*	3	1048	295	.00	.00	.00	0.
2	0500	146	.00	.00	.00	0.	*	3	1100	296	.00	.00	.00	0.
2	0512	147	.00	.00	.00	0.	*	3	1112	297	.00	.00	.00	0.
2	0524	148	.00	.00	.00	0.	*	3	1124	298	.00	.00	.00	0.
2	0536	149	.00	.00	.00	0.	*	3	1136	299	.00	.00	.00	0.
2	0548	150	.00	.00	.00	0.	*	3	1148	300	.00	.00	.00	0.
							*							

****

TOTAL RAINFALL = 3.55, TOTAL LOSS = 1.53, TOTAL EXCESS = 2.02

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
369.	13.20	(CFS)	111.	31.	13.	13.
		(INCHES)	1.775	2.017	2.017	2.017
		(AC-FT)	55.	62.	62.	62.

CUMULATIVE AREA = .58 SQ MI

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

          **************
          *            *
 51 KK    *    COPT33  *
          *            *
          **************
                              Combine flows from section 33 and overflow from Detriot basin

 53 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION   COPT33

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR       24-HR       72-HR     59.80-HR
   369.       13.20       (CFS)     255.        169.         90.         90.
                        (INCHES)    .761       2.017       2.677       2.677
                         (AC-FT)    126.        334.        444.        444.

                       CUMULATIVE AREA =    3.11 SQ MI


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

          **************
          *            *
 54 KK    *     DENRB  *
          *            *
          **************
                              Divert flows into Denver Retention Basin

            HYDROGRAPH ROUTING DATA

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

 57 SV           STORAGE          .0      62.3      62.6      62.9      63.5      65.0      67.7

 58 SQ          DISCHARGE         0.        0.       44.       87.      202.      392.      784.

                                                          ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO      784.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
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THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

HYDROGRAPH AT STATION DENRB

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	59.80-HR
270.	24.00	(CFS)	255.	148.	77.	77.
		(INCHES)	.761	1.773	2.300	2.300
		(AC-FT)	126.	294.	382.	382.

PEAK STORAGE (AC-FT)	TIME (HR)	6-HR	MAXIMUM AVERAGE STORAGE 24-HR	72-HR	59.80-HR
64.	24.00	64.	63.	48.	48.

CUMULATIVE AREA = 3.11 SQ MI

*** ***

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          **************
          *            *
 59 KK    *   OPT33B   *
          *            *
          **************
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Optimized flows from d/s of Denver Regional Basin

SUBBASIN RUNOFF DATA

61 BA SUBBASIN CHARACTERISTICS

TAREA .24 SUBBASIN AREA

PRECIPITATION DATA

47 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 40.00

62 LS SCS LOSS RATE

STRTL .40 INITIAL ABSTRACTION

CRVNBR 90.80 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

63 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .57 LAG

***

UNIT HYDROGRAPH

16 END-OF-PERIOD ORDINATES

33.	113.	171.	161.	119.	68.	43.	26.	16.	10.
6.	4.	2.	2.	1.	0.				

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

                    HYDROGRAPH AT STATION   OPT33B

  TOTAL RAINFALL =   3.55, TOTAL LOSS =   1.17, TOTAL EXCESS =   2.38

PEAK FLOW    TIME                        MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR      24-HR      72-HR    59.80-HR
   235.     12.80      (CFS)      55.        15.         6.         6.
                     (INCHES)    2.123      2.383      2.383      2.383
                      (AC-FT)     27.        31.        31.        31.

                     CUMULATIVE AREA =     .24 SQ MI


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


          **************
          *            *
 64 KK    *       C33  *
          *            *
          **************
                         Combine flows AT Denver Retention Basin (INCLUDES BASIN BYPASS FLOWS)

 66 HC         HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                    HYDROGRAPH AT STATION      C33

PEAK FLOW    TIME                        MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR      24-HR      72-HR    59.80-HR
   274.     24.00      (CFS)     258.       152.        83.        83.
                     (INCHES)     .715      1.682      2.306      2.306
                      (AC-FT)     128.       301.       412.       412.

                     CUMULATIVE AREA =    3.35 SQ MI


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


          **************
          *            *
 67 KK    *      R33A  *
          *            *
          **************
                         Route Denver Regional Basin bypass flows to Pecos and Hartford St.

            HYDROGRAPH ROUTING DATA

 69 RK         KINEMATIC WAVE STREAM ROUTING
```

```
                L       1300.  CHANNEL LENGTH
                S       .0004  SLOPE
                N        .016  CHANNEL ROUGHNESS COEFFICIENT
               CA         .00  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD         .00  BOTTOM WIDTH OR DIAMETER
                Z       25.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
        ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                CELERITY
                                       (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

           3        .40      1.33      1.98    325.00    273.97   1444.43      2.30      2.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=  412.005  EXCESS=     .000 OUTFLOW=  411.274 BASIN STORAGE=     .691 PERCENT ERROR=     .010

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

           3        .40      1.33     12.00              273.93   1440.00      2.30

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

                 HYDROGRAPH AT STATION     R33A

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR      24-HR      72-HR     59.80-HR
    274.      24.00       (CFS)     257.       151.       83.         83.
                        (INCHES)    .715      1.681     2.300       2.300
                         (AC-FT)    128.       300.      411.        411.

                 CUMULATIVE AREA =    3.35 SQ MI


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


          **************
          *            *
 70 KK    *     R33B   *
          *            *
          **************
                         Route Denver Regional Basin bypass and outflows from Hartford St. to
                         Price Road along Pecos Road

            HYDROGRAPH ROUTING DATA

 73 RK        KINEMATIC WAVE STREAM ROUTING
                L      13200.  CHANNEL LENGTH
                S       .0020  SLOPE
                N        .016  CHANNEL ROUGHNESS COEFFICIENT
```

```
          CA        .00  CONTRIBUTING AREA
       SHAPE       TRAP  CHANNEL SHAPE
          WD        .00  BOTTOM WIDTH OR DIAMETER
           Z      25.00  SIDE SLOPE
       DXMIN          2  MINIMUM NUMBER OF DX INTERVALS

                                        ***
                    COMPUTED KINEMATIC PARAMETERS
                         VARIABLE TIME STEP
                       (DT SHOWN IS A MINIMUM)
ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO    VOLUME    MAXIMUM
                                                           PEAK                 CELERITY
                              (MIN)      (FT)     (CFS)    (MIN)      (IN)      (FPS)

   3        .90      1.33      1.76    528.00    273.93   1482.28     2.27      5.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=  410.970  EXCESS=     .000 OUTFLOW=  405.444 BASIN STORAGE=    5.388 PERCENT ERROR=     .034

                         INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

   3        .90      1.33     12.00             273.87   1488.00     2.27

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

                 HYDROGRAPH AT STATION     R33B

PEAK FLOW    TIME                      MAXIMUM AVERAGE FLOW
  (CFS)      (HR)              6-HR      24-HR      72-HR     59.80-HR
   274.     24.80     (CFS)    257.       151.       82.        82.
                     (INCHES)  .715      1.677      2.271      2.271
                     (AC-FT)   128.       300.       406.       406.

                 CUMULATIVE AREA =    3.35 SQ MI


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


        **************
        *            *
 74 KK  *   OPT31C   *
        *            *
        **************
                    Optimized single basin for sections 31-33 (South 1/4 Section)

          SUBBASIN RUNOFF DATA

 76 BA       SUBBASIN CHARACTERISTICS
                 TAREA        .69  SUBBASIN AREA

             PRECIPITATION DATA

 47 PH                          DEPTHS FOR   1-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
```

```
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

77 LS          SCS LOSS RATE
                     STRTL         .32  INITIAL ABSTRACTION
                    CRVNBR       75.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

78 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        1.10  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
                                             30 END-OF-PERIOD ORDINATES
            21.      64.     131.     213.     264.     278.     264.     232.     189.     137.
           103.      78.      61.      46.      35.      27.      20.      15.      12.       9.
             7.       5.       4.       3.       3.       2.       1.       1.       0.       0.

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

                      HYDROGRAPH AT STATION   OPT31C

  TOTAL RAINFALL =    3.55, TOTAL LOSS =    1.96, TOTAL EXCESS =    1.59

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
   283.     13.40       (CFS)      102.         29.         12.         12.
                      (INCHES)    1.377      1.589       1.589       1.589
                       (AC-FT)     51.         58.         58.         58.

                      CUMULATIVE AREA =     .69 SQ MI


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


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          *            *
79 KK     *      C31C  *
          *            *
          **************
                          Combine flows along Pecos at Price Road

81 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                      HYDROGRAPH AT STATION     C31C

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
   492.     13.60       (CFS)      264.        177.         94.         94.
                      (INCHES)     .608      1.632       2.155       2.155
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                    (AC-FT)      131.        352.        464.        464.

                    CUMULATIVE AREA =    4.04 SQ MI


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


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          *            *
 82 KK    *    OPT456  *
          *            *
          **************
                         Optimized hydrograph for sections 4,5 & 6 (north 1/4)

            SUBBASIN RUNOFF DATA

 84 BA        SUBBASIN CHARACTERISTICS
                    TAREA          .77  SUBBASIN AREA

              PRECIPITATION DATA

 47 PH                              DEPTHS FOR   1-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
                .71    1.39    2.44   2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   40.00

 85 LS        SCS LOSS RATE
                    STRTL         1.50  INITIAL ABSTRACTION
                   CRVNBR        81.00  CURVE NUMBER
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 86 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG         3.15  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            81 END-OF-PERIOD ORDINATES
              2.      5.     10.     16.     23.     31.     41.     52.     66.     78.
             90.     99.    106.    111.    114.    114.    114.    113.    109.    104.
             99.     93.     88.     80.     73.     64.     57.     51.     46.     41.
             37.     34.     31.     28.     26.     23.     21.     19.     17.     15.
             14.     13.     11.     10.      9.      8.      8.      7.      6.      6.
              5.      5.      4.      4.      3.      3.      3.      3.      2.      2.
              2.      2.      2.      1.      1.      1.      1.      1.      1.      1.
              1.      1.      1.      1.      0.      0.      0.      0.      0.      0.
              0.

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

                    HYDROGRAPH AT STATION   OPT456

   TOTAL RAINFALL =    3.55, TOTAL LOSS =    2.59, TOTAL EXCESS =     .96

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
```

(CFS)	(HR)		6-HR	24-HR	72-HR	59.80-HR
75.	15.80	(CFS)	54.	20.	8.	8.
		(INCHES)	.656	.956	.956	.956
		(AC-FT)	27.	39.	39.	39.

CUMULATIVE AREA = .77 SQ MI

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          **************
          *            *
 87 KK    *      C456  *
          *            *
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```

Combine flows at Price Road and Pecos

89 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION C456

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	59.80-HR
515.	13.60	(CFS)	278.	197.	102.	102.
		(INCHES)	.537	1.523	1.963	1.963
		(AC-FT)	138.	391.	504.	504.

CUMULATIVE AREA = 4.81 SQ MI

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          **************
          *            *
 90 KK    *    OPT31A  *
          *            *
          **************
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Optimized combined hydrograph for N 1/3 of Section 31 <PCH>

SUBBASIN RUNOFF DATA

92 BA SUBBASIN CHARACTERISTICS

TAREA .55 SUBBASIN AREA

PRECIPITATION DATA

47 PH DEPTHS FOR 1-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

```
.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70    .00    .00    .00    .00

                                STORM AREA =   40.00

93 LS        SCS LOSS RATE
                 STRTL       2.64  INITIAL ABSTRACTION
                CRVNBR      95.00  CURVE NUMBER
                 RTIMP        .00  PERCENT IMPERVIOUS AREA

94 UD        SCS DIMENSIONLESS UNITGRAPH
                 TLAG        .34  LAG

                                        ***

                                   UNIT HYDROGRAPH
                              10 END-OF-PERIOD ORDINATES
     241.     601.     491.     230.     112.     53.     25.     12.     6.     3.

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

                 HYDROGRAPH AT STATION   OPT31A

 TOTAL RAINFALL =   3.55, TOTAL LOSS =   2.97, TOTAL EXCESS =    .58

PEAK FLOW    TIME                     MAXIMUM AVERAGE FLOW
 (CFS)       (HR)              6-HR      24-HR      72-HR     59.80-HR
   50.      13.20     (CFS)     24.        9.         3.         3.
                     (INCHES)   .406      .576       .576       .576
                     (AC-FT)    12.        17.        17.        17.

                 CUMULATIVE AREA =    .55 SQ MI


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


          **************
          *            *
95 KK     *   ROPT31   *
          *            *
          **************
                    Route optimized hydrograph to OPT31B <PP.DAT>

     HYDROGRAPH ROUTING DATA

97 RK        KINEMATIC WAVE STREAM ROUTING
                   L      2500.  CHANNEL LENGTH
                   S      .0015  SLOPE
                   N       .016  CHANNEL ROUGHNESS COEFFICIENT
                  CA        .00  CONTRIBUTING AREA
               SHAPE       TRAP  CHANNEL SHAPE
                  WD        .00  BOTTOM WIDTH OR DIAMETER
                   Z      25.00  SIDE SLOPE
               DXMIN          2  MINIMUM NUMBER OF DX INTERVALS

                                        ***
                         COMPUTED KINEMATIC PARAMETERS
                              VARIABLE TIME STEP
```

(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.78	1.33	2.84	500.00	50.16	803.01	.58	2.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= 16.906 EXCESS= .000 OUTFLOW= 16.915 BASIN STORAGE= .000 PERCENT ERROR= -.057

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.78	1.33	12.00	50.02	804.00	.58

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

HYDROGRAPH AT STATION ROPT31

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
50.	13.40	(CFS)	24.	9.	3.	3.
		(INCHES)	.403	.578	.578	.578
		(AC-FT)	12.	17.	17.	17.

CUMULATIVE AREA = .55 SQ MI

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          **************
          *            *
 98 KK    *   OPT31B   *
          *            *
          **************
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Optimized basin for Section 31 (middle 1/3) <~~PCH.DAT~~ PF>

SUBBASIN RUNOFF DATA

100 BA SUBBASIN CHARACTERISTICS

TAREA 1.40 SUBBASIN AREA

PRECIPITATION DATA

47 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 40.00

101 LS SCS LOSS RATE

STRTL 1.90 INITIAL ABSTRACTION

CRVNBR 79.40 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

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102 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        1.20  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                          32 END-OF-PERIOD ORDINATES
            35.     104.     213.     356.     466.     516.     516.     473.     412.     330.
           243.     189.     146.     116.      91.      70.      54.      42.      33.      26.
            20.      16.      12.       9.       7.       6.       5.       4.       3.       2.
             1.       0.

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

                      HYDROGRAPH AT STATION   OPT31B

   TOTAL RAINFALL =    3.55, TOTAL LOSS =    2.91, TOTAL EXCESS =     .64

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
   155.      13.80        (CFS)      74.         24.         10.         10.
                        (INCHES)    .488        .641        .641        .641
                         (AC-FT)     36.         48.         48.         48.

                      CUMULATIVE AREA =    1.40 SQ MI


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


          **************
          *            *
103 KK    *      C31B  *
          *            *
          **************
                         Combine flows 1000 ft. N. of Basin H

105 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                      HYDROGRAPH AT STATION     C31B

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
   200.      13.60        (CFS)      97.         33.         13.         13.
                        (INCHES)    .463        .623        .623        .623
                         (AC-FT)     48.         65.         65.         65.

                      CUMULATIVE AREA =    1.95 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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          *            *
106 KK    *      ROPT  *
          *            *
          **************
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Route optimized hydrograph to proposed Interchange Basin <PF.DAT>

HYDROGRAPH ROUTING DATA

108 RK KINEMATIC WAVE STREAM ROUTING

L	1000.	CHANNEL LENGTH
S	.0010	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	50.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.50	1.33	1.85	333.33	199.94	820.43	.62	3.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= 64.828 EXCESS= .000 OUTFLOW= 64.795 BASIN STORAGE= .000 PERCENT ERROR= .052

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.50	1.33	12.00	199.82	828.00	.62

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

HYDROGRAPH AT STATION ROPT

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
200.	13.80	(CFS)	97.	33.	13.	13.
		(INCHES)	.462	.623	.623	.623
		(AC-FT)	48.	65.	65.	65.

CUMULATIVE AREA = 1.95 SQ MI

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109 KK     *    CHNDLR  *
           *            *
           **************
                              Pumped outflow from Chandler Basins (Galveston, Arrowhead and Denver)

  7 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN          12  TIME INTERVAL IN MINUTES
                     JXDATE      1    0  STARTING DATE
                     JXTIME           0  STARTING TIME

              SUBBASIN RUNOFF DATA

111 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .00  SUBBASIN AREA

                                                          ***

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

                        HYDROGRAPH AT STATION   CHNDLR

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    55.      13.00        (CFS)     55.         55.         33.         33.
                         (INCHES)  511.364    2045.455    3068.183    3068.183
                         (AC-FT)    27.        109.        164.        164.

                         CUMULATIVE AREA =     .00 SQ MI


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


           **************
           *            *
142 KK     *      BASH  *
           *            *
           **************
                              Combine Chandler pumped outflow from basins to inflow at Price Regional
                              Basin H

145 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           1  PRINT CONTROL
                      IPLOT           2  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          60  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .200  TIME INTERVAL IN HOURS


146 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION BASH

SUM OF 3 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		1500	76	385.	2		0600	151	206.	2		2100	226	116.
1		0012	2	0.	1		1512	77	357.	2		0612	152	200.	2		2112	227	116.
1		0024	3	0.	1		1524	78	333.	2		0624	153	194.	2		2124	228	116.
1		0036	4	0.	1		1536	79	311.	2		0636	154	188.	2		2136	229	116.
1		0048	5	0.	1		1548	80	291.	2		0648	155	183.	2		2148	230	115.
1		0100	6	0.	1		1600	81	273.	2		0700	156	177.	2		2200	231	115.
1		0112	7	0.	1		1612	82	257.	2		0712	157	172.	2		2212	232	115.
1		0124	8	0.	1		1624	83	243.	2		0724	158	167.	2		2224	233	115.
1		0136	9	0.	1		1636	84	231.	2		0736	159	163.	2		2236	234	115.
1		0148	10	0.	1		1648	85	219.	2		0748	160	159.	2		2248	235	115.
1		0200	11	0.	1		1700	86	209.	2		0800	161	157.	2		2300	236	115.
1		0212	12	0.	1		1712	87	198.	2		0812	162	155.	2		2312	237	115.
1		0224	13	0.	1		1724	88	189.	2		0824	163	154.	2		2324	238	115.
1		0236	14	0.	1		1736	89	180.	2		0836	164	153.	2		2336	239	114.
1		0248	15	0.	1		1748	90	231.	2		0848	165	151.	2		2348	240	114.
1		0300	16	0.	1		1800	91	267.	2		0900	166	150.	3		0000	241	114.
1		0312	17	0.	1		1812	92	268.	2		0912	167	149.	3		0012	242	114.
1		0324	18	0.	1		1824	93	269.	2		0924	168	147.	3		0024	243	113.
1		0336	19	0.	1		1836	94	275.	2		0936	169	146.	3		0036	244	113.
1		0348	20	0.	1		1848	95	285.	2		0948	170	144.	3		0048	245	113.
1		0400	21	0.	1		1900	96	293.	2		1000	171	143.	3		0100	246	58.
1		0412	22	0.	1		1912	97	296.	2		1012	172	141.	3		0112	247	58.
1		0424	23	0.	1		1924	98	299.	2		1024	173	140.	3		0124	248	57.
1		0436	24	0.	1		1936	99	301.	2		1036	174	138.	3		0136	249	57.
1		0448	25	0.	1		1948	100	303.	2		1048	175	137.	3		0148	250	57.
1		0500	26	0.	1		2000	101	305.	2		1100	176	135.	3		0200	251	57.
1		0512	27	0.	1		2012	102	309.	2		1112	177	134.	3		0212	252	56.
1		0524	28	0.	1		2024	103	313.	2		1124	178	132.	3		0224	253	56.
1		0536	29	0.	1		2036	104	317.	2		1136	179	131.	3		0236	254	56.
1		0548	30	0.	1		2048	105	322.	2		1148	180	130.	3		0248	255	56.
1		0600	31	0.	1		2100	106	328.	2		1200	181	128.	3		0300	256	56.
1		0612	32	0.	1		2112	107	333.	2		1212	182	127.	3		0312	257	55.
1		0624	33	0.	1		2124	108	338.	2		1224	183	125.	3		0324	258	55.
1		0636	34	0.	1		2136	109	343.	2		1236	184	124.	3		0336	259	55.
1		0648	35	0.	1		2148	110	348.	2		1248	185	123.	3		0348	260	55.
1		0700	36	0.	1		2200	111	352.	2		1300	186	121.	3		0400	261	54.
1		0712	37	0.	1		2212	112	356.	2		1312	187	120.	3		0412	262	54.
1		0724	38	0.	1		2224	113	360.	2		1324	188	119.	3		0424	263	54.
1		0736	39	0.	1		2236	114	363.	2		1336	189	118.	3		0436	264	54.
1		0748	40	0.	1		2248	115	366.	2		1348	190	118.	3		0448	265	54.
1		0800	41	0.	1		2300	116	369.	2		1400	191	118.	3		0500	266	53.
1		0812	42	0.	1		2312	117	371.	2		1412	192	118.	3		0512	267	53.
1		0824	43	0.	1		2324	118	373.	2		1424	193	118.	3		0524	268	53.
1		0836	44	0.	1		2336	119	374.	2		1436	194	118.	3		0536	269	53.
1		0848	45	0.	1		2348	120	375.	2		1448	195	118.	3		0548	270	53.
1		0900	46	0.	2		0000	121	375.	2		1500	196	118.	3		0600	271	52.
1		0912	47	0.	2		0012	122	375.	2		1512	197	118.	3		0612	272	52.
1		0924	48	0.	2		0024	123	375.	2		1524	198	118.	3		0624	273	52.
1		0936	49	0.	2		0036	124	372.	2		1536	199	118.	3		0636	274	52.
1		0948	50	0.	2		0048	125	368.	2		1548	200	118.	3		0648	275	52.
1		1000	51	0.	2		0100	126	363.	2		1600	201	117.	3		0700	276	51.
1		1012	52	1.	2		0112	127	357.	2		1612	202	117.	3		0712	277	51.

1	1024	53	1.	*	2	0124	128	351.	*	2	1624	203	117.	*	3	0724	278	51.
1	1036	54	1.	*	2	0136	129	345.	*	2	1636	204	117.	*	3	0736	279	51.
1	1048	55	2.	*	2	0148	130	339.	*	2	1648	205	117.	*	3	0748	280	51.
1	1100	56	3.	*	2	0200	131	334.	*	2	1700	206	117.	*	3	0800	281	50.
1	1112	57	4.	*	2	0212	132	328.	*	2	1712	207	117.	*	3	0812	282	50.
1	1124	58	5.	*	2	0224	133	323.	*	2	1724	208	117.	*	3	0824	283	50.
1	1136	59	7.	*	2	0236	134	317.	*	2	1736	209	117.	*	3	0836	284	50.
1	1148	60	10.	*	2	0248	135	312.	*	2	1748	210	117.	*	3	0848	285	50.
1	1200	61	17.	*	2	0300	136	306.	*	2	1800	211	117.	*	3	0900	286	49.
1	1212	62	40.	*	2	0312	137	300.	*	2	1812	212	117.	*	3	0912	287	49.
1	1224	63	84.	*	2	0324	138	294.	*	2	1824	213	117.	*	3	0924	288	49.
1	1236	64	158.	*	2	0336	139	287.	*	2	1836	214	117.	*	3	0936	289	49.
1	1248	65	255.	*	2	0348	140	281.	*	2	1848	215	117.	*	3	0948	290	48.
1	1300	66	414.	*	2	0400	141	274.	*	2	1900	216	116.	*	3	1000	291	48.
1	1312	67	499.	*	2	0412	142	267.	*	2	1912	217	116.	*	3	1012	292	48.
1	1324	68	739.	*	2	0424	143	259.	*	2	1924	218	116.	*	3	1024	293	47.
1	1336	69	767.	*	2	0436	144	252.	*	2	1936	219	116.	*	3	1036	294	47.
1	1348	70	724.	*	2	0448	145	245.	*	2	1948	220	116.	*	3	1048	295	47.
1	1400	71	651.	*	2	0500	146	238.	*	2	2000	221	116.	*	3	1100	296	47.
1	1412	72	578.	*	2	0512	147	232.	*	2	2012	222	116.	*	3	1112	297	46.
1	1424	73	514.	*	2	0524	148	225.	*	2	2024	223	116.	*	3	1124	298	46.
1	1436	74	462.	*	2	0536	149	219.	*	2	2036	224	116.	*	3	1136	299	46.
1	1448	75	419.	*	2	0548	150	212.	*	2	2048	225	116.	*	3	1148	300	45.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
767.	13.60	(CFS)	367.	284.	148.	148.
		(INCHES)	.505	1.560	2.030	2.030
		(AC-FT)	182.	562.	732.	732.

CUMULATIVE AREA = 6.76 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	PT2D	260.	23.60	247.	143.	78.	2.53		
ROUTED TO	RPT2D	260.	24.00	247.	143.	77.	2.53		
HYDROGRAPH AT	OPT33	369.	13.20	111.	31.	13.	.58		
2 COMBINED AT	COPT33	369.	13.20	255.	169.	90.	3.11		
ROUTED TO	DENRB	270.	24.00	255.	148.	77.	3.11		
HYDROGRAPH AT	OPT33B	235.	12.80	55.	15.	6.	.24		
2 COMBINED AT	C33	274.	24.00	258.	152.	83.	3.35		
ROUTED TO	R33A	274.	24.00	257.	151.	83.	3.35		
ROUTED TO	R33B	274.	24.80	257.	151.	82.	3.35		
HYDROGRAPH AT	OPT31C	283.	13.40	102.	29.	12.	.69		
2 COMBINED AT	C31C	492.	13.60	264.	177.	94.	4.04		
HYDROGRAPH AT	OPT456	75.	15.80	54.	20.	8.	.77		
2 COMBINED AT	C456	515.	13.60	278.	197.	102.	4.81		
HYDROGRAPH AT	OPT31A	50.	13.20	24.	9.	3.	.55		
ROUTED TO	ROPT31	50.	13.40	24.	9.	3.	.55		
HYDROGRAPH AT	OPT31B	155.	13.80	74.	24.	10.	1.40		
2 COMBINED AT	C31B	200.	13.60	97.	33.	13.	1.95		
ROUTED TO	ROPT	200.	13.80	97.	33.	13.	1.95		
HYDROGRAPH AT	CHNDLR	55.	13.00	55.	55.	33.	.00		
3 COMBINED AT	BASH	767.	13.60	367.	284.	148.	6.76		

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RPT2D	3	1.11	259.78	1442.92	2.83	12.00	259.75	1440.00	2.83
CONTINUITY SUMMARY (AC-FT) - INFLOW= 385.096 EXCESS= .000 OUTFLOW= 381.829 BASIN STORAGE= 3.273 PERCENT ERROR= -.002									
R33A	3	1.98	273.97	1444.43	2.30	12.00	273.93	1440.00	2.30
CONTINUITY SUMMARY (AC-FT) - INFLOW= 412.005 EXCESS= .000 OUTFLOW= 411.274 BASIN STORAGE= .691 PERCENT ERROR= .010									
R33B	3	1.76	273.93	1482.28	2.27	12.00	273.87	1488.00	2.27
CONTINUITY SUMMARY (AC-FT) - INFLOW= 410.970 EXCESS= .000 OUTFLOW= 405.444 BASIN STORAGE= 5.388 PERCENT ERROR= .034									
ROPT31	3	2.84	50.16	803.01	.58	12.00	50.02	804.00	.58
CONTINUITY SUMMARY (AC-FT) - INFLOW= 16.906 EXCESS= .000 OUTFLOW= 16.915 BASIN STORAGE= .000 PERCENT ERROR= -.057									
ROPT	3	1.85	199.94	820.43	.62	12.00	199.82	828.00	.62
CONTINUITY SUMMARY (AC-FT) - INFLOW= 64.828 EXCESS= .000 OUTFLOW= 64.795 BASIN STORAGE= .000 PERCENT ERROR= .052									

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

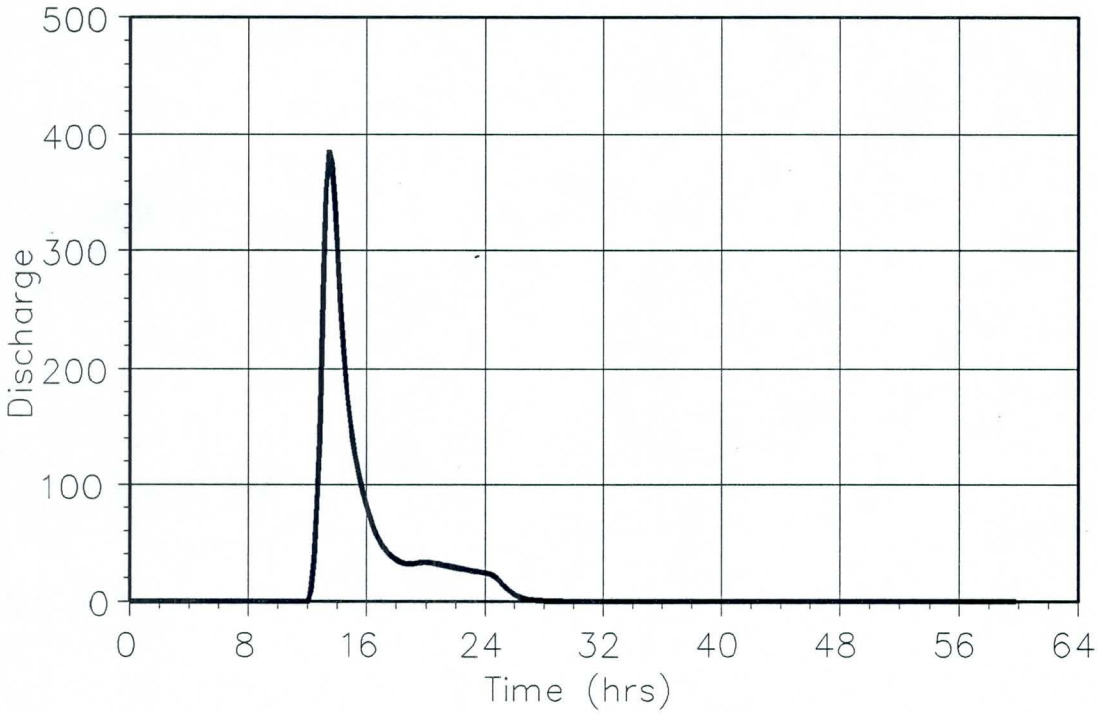
Appendix D-2 - Area West of Price Road

Outlet A - Model

Outlet B - Model

Outlet C - Model

Outlet A - Model



Location: Southwest Loop and McClintock Drive
Volume: 81 Acre-Feet
Peak Q: 386 Cubic Feet per Second

OUTLET A INFLOW HYDROGRAPH

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: OUTLETA

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  08/15/1989  TIME  16:58:02 *
*                                       *
*****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
****************************************
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```
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
```

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:::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::
:::                                       :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION  :::
:::                                       :::
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:::::::::::::::::::::::::::::::::::::::::::::
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============================
H A E S T A D   M E T H O D S
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

              *DIAGRAM
  1           ID       PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR OUTLET-A BASIN
  2           ID       CONTRIBUTING SECTIONS LISTED BELOW:
  3           ID            SECTION 25, 26
  4           ID       INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID       100 YEAR - 24 HOUR STORM (BALANCED TRIANGULAR DISTRIBUTION)
  6           ID       HDR - PHOENIX
  7           ID
  8           ID
  9           IT      12                    300
 10           IO       3       0       0

 11           KK  SECT25
 12           KM       CHANDLER
 13           KM       COMPUTE RUNOFF FOR SECTION 25
 14           KO       1       2
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA    1.00
 17           LS    1.81      84
 18           UD    0.91

 19           KK     RT1
 20           KM       ROUTE SECTION 25 HYDROGRAPH TO OUTLET-A
 21           RK    4400  0.0011   0.016            TRAP     0.0    25.0

 22           KK  SECT36
 23           KM       CHANDLER
 24           KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 36
 25           BA    0.83
 26           LS    1.76      84
 27           UD    0.85

 28           KK  OUTLTA
 29           KM       COMBINE RT1 - SECT36 HYDROGRAPHS TO GIVE HYDROGRAPH AT OUTLET-A
 30           HC       2
 31           KO       1       2                    60
 32           ZZ
```

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

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

   11      SECT25
                V
                V
   19         RT1
                .
                .
   22           .      SECT36
                .           .
                .           .
   28      OUTLTA............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: OUTLETA

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  08/15/1989  TIME  16:58:02 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*                                       *
*                                       *
*****************************************
```

```
                    PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR OUTLET-A BASIN
                    CONTRIBUTING SECTIONS LISTED BELOW:
                         SECTION 25, 26
                    INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
                    100 YEAR - 24 HOUR STORM (BALANCED TRIANGULAR DISTRIBUTION)
                    HDR - PHOENIX


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

    IT        HYDROGRAPH TIME DATA
                     NMIN         12  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      3    0  ENDING DATE
                   NDTIME       1148  ENDING TIME
                    ICENT         19  CENTURY MARK

                COMPUTATION INTERVAL     .20 HOURS
                     TOTAL TIME BASE   59.80 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


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


            **************
            *            *
 11 KK      *   SECT25   *
            *            *
            **************
                    CHANDLER
                    COMPUTE RUNOFF FOR SECTION 25

 14 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          1  PRINT CONTROL
                    IPLOT          2  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

            SUBBASIN RUNOFF DATA

 16 BA        SUBBASIN CHARACTERISTICS
                    TAREA       1.00  SUBBASIN AREA

              PRECIPITATION DATA

 15 PH                          DEPTHS FOR   1-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
```

.71 1.39 2.44 2.66 2.81 3.11 3.33 3.70 .00 .00 .00 .00

STORM AREA = 18.38

17 LS SCS LOSS RATE

STRTL	1.81	INITIAL ABSTRACTION
CRVNBR	84.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

18 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	.91	LAG

***

UNIT HYDROGRAPH
25 END-OF-PERIOD ORDINATES

47.	146.	311.	441.	478.	449.	379.	277.	193.	139.
103.	74.	54.	39.	28.	20.	15.	11.	8.	6.
4.	3.	2.	1.	0.					

****

HYDROGRAPH AT STATION SECT25

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	*	2		0600	151	.00	.00	.00	0.
1		0012	2	.00	.00	.00	0.	*	2		0612	152	.00	.00	.00	0.
1		0024	3	.01	.01	.00	0.	*	2		0624	153	.00	.00	.00	0.
1		0036	4	.01	.01	.00	0.	*	2		0636	154	.00	.00	.00	0.
1		0048	5	.01	.01	.00	0.	*	2		0648	155	.00	.00	.00	0.
1		0100	6	.01	.01	.00	0.	*	2		0700	156	.00	.00	.00	0.
1		0112	7	.01	.01	.00	0.	*	2		0712	157	.00	.00	.00	0.
1		0124	8	.01	.01	.00	0.	*	2		0724	158	.00	.00	.00	0.
1		0136	9	.01	.01	.00	0.	*	2		0736	159	.00	.00	.00	0.
1		0148	10	.01	.01	.00	0.	*	2		0748	160	.00	.00	.00	0.
1		0200	11	.01	.01	.00	0.	*	2		0800	161	.00	.00	.00	0.
1		0212	12	.01	.01	.00	0.	*	2		0812	162	.00	.00	.00	0.
1		0224	13	.01	.01	.00	0.	*	2		0824	163	.00	.00	.00	0.
1		0236	14	.01	.01	.00	0.	*	2		0836	164	.00	.00	.00	0.
1		0248	15	.01	.01	.00	0.	*	2		0848	165	.00	.00	.00	0.
1		0300	16	.01	.01	.00	0.	*	2		0900	166	.00	.00	.00	0.
1		0312	17	.01	.01	.00	0.	*	2		0912	167	.00	.00	.00	0.
1		0324	18	.01	.01	.00	0.	*	2		0924	168	.00	.00	.00	0.
1		0336	19	.01	.01	.00	0.	*	2		0936	169	.00	.00	.00	0.
1		0348	20	.01	.01	.00	0.	*	2		0948	170	.00	.00	.00	0.
1		0400	21	.01	.01	.00	0.	*	2		1000	171	.00	.00	.00	0.
1		0412	22	.01	.01	.00	0.	*	2		1012	172	.00	.00	.00	0.
1		0424	23	.01	.01	.00	0.	*	2		1024	173	.00	.00	.00	0.
1		0436	24	.01	.01	.00	0.	*	2		1036	174	.00	.00	.00	0.
1		0448	25	.01	.01	.00	0.	*	2		1048	175	.00	.00	.00	0.
1		0500	26	.01	.01	.00	0.	*	2		1100	176	.00	.00	.00	0.
1		0512	27	.01	.01	.00	0.	*	2		1112	177	.00	.00	.00	0.
1		0524	28	.01	.01	.00	0.	*	2		1124	178	.00	.00	.00	0.
1		0536	29	.01	.01	.00	0.	*	2		1136	179	.00	.00	.00	0.
1		0548	30	.01	.01	.00	0.	*	2		1148	180	.00	.00	.00	0.
1		0600	31	.01	.01	.00	0.	*	2		1200	181	.00	.00	.00	0.
1		0612	32	.01	.01	.00	0.	*	2		1212	182	.00	.00	.00	0.
1		0624	33	.01	.01	.00	0.	*	2		1224	183	.00	.00	.00	0.
1		0636	34	.01	.01	.00	0.	*	2		1236	184	.00	.00	.00	0.
1		0648	35	.01	.01	.00	0.	*	2		1248	185	.00	.00	.00	0.
1		0700	36	.01	.01	.00	0.	*	2		1300	186	.00	.00	.00	0.
1		0712	37	.01	.01	.00	0.	*	2		1312	187	.00	.00	.00	0.
1		0724	38	.01	.01	.00	0.	*	2		1324	188	.00	.00	.00	0.
1		0736	39	.01	.01	.00	0.	*	2		1336	189	.00	.00	.00	0.
1		0748	40	.01	.01	.00	0.	*	2		1348	190	.00	.00	.00	0.
1		0800	41	.01	.01	.00	0.	*	2		1400	191	.00	.00	.00	0.
1		0812	42	.01	.01	.00	0.	*	2		1412	192	.00	.00	.00	0.
1		0824	43	.01	.01	.00	0.	*	2		1424	193	.00	.00	.00	0.
1		0836	44	.01	.01	.00	0.	*	2		1436	194	.00	.00	.00	0.
1		0848	45	.01	.01	.00	0.	*	2		1448	195	.00	.00	.00	0.
1		0900	46	.01	.01	.00	0.	*	2		1500	196	.00	.00	.00	0.
1		0912	47	.02	.02	.00	0.	*	2		1512	197	.00	.00	.00	0.
1		0924	48	.02	.02	.00	0.	*	2		1524	198	.00	.00	.00	0.
1		0936	49	.02	.02	.00	0.	*	2		1536	199	.00	.00	.00	0.
1		0948	50	.02	.02	.00	0.	*	2		1548	200	.00	.00	.00	0.
1		1000	51	.02	.02	.00	0.	*	2		1600	201	.00	.00	.00	0.
1		1012	52	.02	.02	.00	0.	*	2		1612	202	.00	.00	.00	0.

1	1024	53	.03	.03	.00	0.	*	2	1624	203	.00	.00	.00	0.
1	1036	54	.03	.03	.00	0.	*	2	1636	204	.00	.00	.00	0.
1	1048	55	.03	.03	.00	0.	*	2	1648	205	.00	.00	.00	0.
1	1100	56	.04	.04	.00	0.	*	2	1700	206	.00	.00	.00	0.
1	1112	57	.04	.04	.00	0.	*	2	1712	207	.00	.00	.00	0.
1	1124	58	.05	.05	.00	0.	*	2	1724	208	.00	.00	.00	0.
1	1136	59	.07	.07	.00	0.	*	2	1736	209	.00	.00	.00	0.
1	1148	60	.23	.23	.00	0.	*	2	1748	210	.00	.00	.00	0.
1	1200	61	.44	.44	.00	0.	*	2	1800	211	.00	.00	.00	0.
1	1212	62	1.09	.92	.17	8.	*	2	1812	212	.00	.00	.00	0.
1	1224	63	.29	.15	.15	31.	*	2	1824	213	.00	.00	.00	0.
1	1236	64	.19	.08	.11	78.	*	2	1836	214	.00	.00	.00	0.
1	1248	65	.06	.02	.03	137.	*	2	1848	215	.00	.00	.00	0.
1	1300	66	.05	.02	.03	185.	*	2	1900	216	.00	.00	.00	0.
1	1312	67	.04	.01	.02	210.	*	2	1912	217	.00	.00	.00	0.
1	1324	68	.03	.01	.02	211.	*	2	1924	218	.00	.00	.00	0.
1	1336	69	.03	.01	.02	193.	*	2	1936	219	.00	.00	.00	0.
1	1348	70	.03	.01	.02	166.	*	2	1948	220	.00	.00	.00	0.
1	1400	71	.02	.01	.02	139.	*	2	2000	221	.00	.00	.00	0.
1	1412	72	.02	.01	.02	118.	*	2	2012	222	.00	.00	.00	0.
1	1424	73	.02	.01	.01	101.	*	2	2024	223	.00	.00	.00	0.
1	1436	74	.02	.01	.01	88.	*	2	2036	224	.00	.00	.00	0.
1	1448	75	.02	.01	.01	77.	*	2	2048	225	.00	.00	.00	0.
1	1500	76	.02	.01	.01	69.	*	2	2100	226	.00	.00	.00	0.
1	1512	77	.01	.00	.01	61.	*	2	2112	227	.00	.00	.00	0.
1	1524	78	.01	.00	.01	55.	*	2	2124	228	.00	.00	.00	0.
1	1536	79	.01	.00	.01	49.	*	2	2136	229	.00	.00	.00	0.
1	1548	80	.01	.00	.01	44.	*	2	2148	230	.00	.00	.00	0.
1	1600	81	.01	.00	.01	39.	*	2	2200	231	.00	.00	.00	0.
1	1612	82	.01	.00	.01	34.	*	2	2212	232	.00	.00	.00	0.
1	1624	83	.01	.00	.01	31.	*	2	2224	233	.00	.00	.00	0.
1	1636	84	.01	.00	.01	28.	*	2	2236	234	.00	.00	.00	0.
1	1648	85	.01	.00	.01	26.	*	2	2248	235	.00	.00	.00	0.
1	1700	86	.01	.00	.01	24.	*	2	2300	236	.00	.00	.00	0.
1	1712	87	.01	.00	.01	22.	*	2	2312	237	.00	.00	.00	0.
1	1724	88	.01	.00	.00	21.	*	2	2324	238	.00	.00	.00	0.
1	1736	89	.01	.00	.00	20.	*	2	2336	239	.00	.00	.00	0.
1	1748	90	.01	.00	.00	19.	*	2	2348	240	.00	.00	.00	0.
1	1800	91	.01	.00	.00	18.	*	3	0000	241	.00	.00	.00	0.
1	1812	92	.01	.00	.01	17.	*	3	0012	242	.00	.00	.00	0.
1	1824	93	.01	.00	.01	17.	*	3	0024	243	.00	.00	.00	0.
1	1836	94	.01	.00	.01	17.	*	3	0036	244	.00	.00	.00	0.
1	1848	95	.01	.00	.01	17.	*	3	0048	245	.00	.00	.00	0.
1	1900	96	.01	.00	.01	18.	*	3	0100	246	.00	.00	.00	0.
1	1912	97	.01	.00	.01	18.	*	3	0112	247	.00	.00	.00	0.
1	1924	98	.01	.00	.01	18.	*	3	0124	248	.00	.00	.00	0.
1	1936	99	.01	.00	.01	18.	*	3	0136	249	.00	.00	.00	0.
1	1948	100	.01	.00	.01	18.	*	3	0148	250	.00	.00	.00	0.
1	2000	101	.01	.00	.01	18.	*	3	0200	251	.00	.00	.00	0.
1	2012	102	.01	.00	.00	18.	*	3	0212	252	.00	.00	.00	0.
1	2024	103	.01	.00	.00	17.	*	3	0224	253	.00	.00	.00	0.
1	2036	104	.01	.00	.00	17.	*	3	0236	254	.00	.00	.00	0.
1	2048	105	.01	.00	.00	17.	*	3	0248	255	.00	.00	.00	0.
1	2100	106	.01	.00	.00	17.	*	3	0300	256	.00	.00	.00	0.
1	2112	107	.01	.00	.00	16.	*	3	0312	257	.00	.00	.00	0.
1	2124	108	.01	.00	.00	16.	*	3	0324	258	.00	.00	.00	0.
1	2136	109	.01	.00	.00	16.	*	3	0336	259	.00	.00	.00	0.
1	2148	110	.01	.00	.00	15.	*	3	0348	260	.00	.00	.00	0.
1	2200	111	.01	.00	.00	15.	*	3	0400	261	.00	.00	.00	0.
1	2212	112	.01	.00	.00	15.	*	3	0412	262	.00	.00	.00	0.
1	2224	113	.01	.00	.00	15.	*	3	0424	263	.00	.00	.00	0.
1	2236	114	.01	.00	.00	14.	*	3	0436	264	.00	.00	.00	0.
1	2248	115	.01	.00	.00	14.	*	3	0448	265	.00	.00	.00	0.
1	2300	116	.01	.00	.00	14.	*	3	0500	266	.00	.00	.00	0.
1	2312	117	.01	.00	.00	14.	*	3	0512	267	.00	.00	.00	0.
1	2324	118	.01	.00	.00	13.	*	3	0524	268	.00	.00	.00	0.
1	2336	119	.01	.00	.00	13.	*	3	0536	269	.00	.00	.00	0.
1	2348	120	.01	.00	.00	13.	*	3	0548	270	.00	.00	.00	0.
2	0000	121	.01	.00	.00	13.	*	3	0600	271	.00	.00	.00	0.
2	0012	122	.00	.00	.00	13.	*	3	0612	272	.00	.00	.00	0.
2	0024	123	.00	.00	.00	12.	*	3	0624	273	.00	.00	.00	0.
2	0036	124	.00	.00	.00	11.	*	3	0636	274	.00	.00	.00	0.
2	0048	125	.00	.00	.00	9.	*	3	0648	275	.00	.00	.00	0.
2	0100	126	.00	.00	.00	7.	*	3	0700	276	.00	.00	.00	0.
2	0112	127	.00	.00	.00	5.	*	3	0712	277	.00	.00	.00	0.
2	0124	128	.00	.00	.00	4.	*	3	0724	278	.00	.00	.00	0.
2	0136	129	.00	.00	.00	3.	*	3	0736	279	.00	.00	.00	0.
2	0148	130	.00	.00	.00	2.	*	3	0748	280	.00	.00	.00	0.
2	0200	131	.00	.00	.00	1.	*	3	0800	281	.00	.00	.00	0.
2	0212	132	.00	.00	.00	1.	*	3	0812	282	.00	.00	.00	0.

2	0224	133	.00	.00	.00	1.	*	3	0824	283	.00	.00	.00	0.
2	0236	134	.00	.00	.00	1.	*	3	0836	284	.00	.00	.00	0.
2	0248	135	.00	.00	.00	0.	*	3	0848	285	.00	.00	.00	0.
2	0300	136	.00	.00	.00	0.	*	3	0900	286	.00	.00	.00	0.
2	0312	137	.00	.00	.00	0.	*	3	0912	287	.00	.00	.00	0.
2	0324	138	.00	.00	.00	0.	*	3	0924	288	.00	.00	.00	0.
2	0336	139	.00	.00	.00	0.	*	3	0936	289	.00	.00	.00	0.
2	0348	140	.00	.00	.00	0.	*	3	0948	290	.00	.00	.00	0.
2	0400	141	.00	.00	.00	0.	*	3	1000	291	.00	.00	.00	0.
2	0412	142	.00	.00	.00	0.	*	3	1012	292	.00	.00	.00	0.
2	0424	143	.00	.00	.00	0.	*	3	1024	293	.00	.00	.00	0.
2	0436	144	.00	.00	.00	0.	*	3	1036	294	.00	.00	.00	0.
2	0448	145	.00	.00	.00	0.	*	3	1048	295	.00	.00	.00	0.
2	0500	146	.00	.00	.00	0.	*	3	1100	296	.00	.00	.00	0.
2	0512	147	.00	.00	.00	0.	*	3	1112	297	.00	.00	.00	0.
2	0524	148	.00	.00	.00	0.	*	3	1124	298	.00	.00	.00	0.
2	0536	149	.00	.00	.00	0.	*	3	1136	299	.00	.00	.00	0.
2	0548	150	.00	.00	.00	0.	*	3	1148	300	.00	.00	.00	0.
							*							

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TOTAL RAINFALL = 3.62, TOTAL LOSS = 2.74, TOTAL EXCESS = .88

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
211.	13.40	(CFS)	77.	24.	10.	10.
		(INCHES)	.714	.882	.882	.882
		(AC-FT)	38.	47.	47.	47.

CUMULATIVE AREA = 1.00 SQ MI

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

          **************
          *            *
 19 KK    *      RT1   *
          *            *
          **************
                         ROUTE SECTION 25 HYDROGRAPH TO OUTLET-A

            HYDROGRAPH ROUTING DATA

 21 RK        KINEMATIC WAVE STREAM ROUTING
                     L       4400.  CHANNEL LENGTH
                     S       .0011  SLOPE
                     N        .016  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .00  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD         .00  BOTTOM WIDTH OR DIAMETER
                     Z       25.00  SIDE SLOPE
                 DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)      (FT)    (CFS)    (MIN)       (IN)      (FPS)

                    3         .67     1.33      1.63    366.67   210.96   820.80       .88       3.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=   47.026  EXCESS=     .000 OUTFLOW=   46.970 BASIN STORAGE=     .000 PERCENT ERROR=     .119

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3         .67     1.33     12.00             210.57   816.00       .88

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

                  HYDROGRAPH AT STATION      RT1

 PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR      24-HR      72-HR     59.80-HR
   211.      13.60      (CFS)       76.        24.         9.          9.
                      (INCHES)     .709       .880       .880        .880
                       (AC-FT)      38.        47.        47.         47.

                     CUMULATIVE AREA =    1.00 SQ MI


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

          **************
          *            *
 22 KK    *    SECT36  *
          *            *
          **************
                         CHANDLER
                         COMPUTE RUNOFF HYDROGRAPH FOR SECTION 36

            SUBBASIN RUNOFF DATA

 25 BA        SUBBASIN CHARACTERISTICS
                   TAREA         .83  SUBBASIN AREA

              PRECIPITATION DATA

 15 PH                          DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
              ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ...........
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          5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
            .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

 26 LS        SCS LOSS RATE
                   STRTL        1.76  INITIAL ABSTRACTION
                  CRVNBR       84.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 27 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .85  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                            23 END-OF-PERIOD ORDINATES
          46.     145.     300.     404.     420.     374.     298.     201.     141.     102.
          73.      51.      37.      26.      18.      13.       9.       6.       5.       4.
           3.       2.       1.

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

                     HYDROGRAPH AT STATION   SECT36

  TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.70, TOTAL EXCESS =     .92

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
   197.     13.20        (CFS)      67.         21.          8.          8.
                       (INCHES)     .751        .919        .919        .919
                        (AC-FT)     33.         41.         41.         41.

                     CUMULATIVE AREA =     .83 SQ MI


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          **************
          *            *
 28 KK    *    OUTLTA  *
          *            *
          **************
                     COMBINE RT1 - SECT36 HYDROGRAPHS TO GIVE HYDROGRAPH AT OUTLET-A

 31 KO        OUTPUT CONTROL VARIABLES
                   IPRNT          1  PRINT CONTROL
                   IPLOT          2  PLOT CONTROL
                   QSCAL         0.  HYDROGRAPH PLOT SCALE
                   IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                    IOUT         60  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2        300  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT       .200  TIME INTERVAL IN HOURS


 30 HC        HYDROGRAPH COMBINATION
                   ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                                                HYDROGRAPH AT STATION   OUTLTA
                                                    SUM OF  2 HYDROGRAPHS

*************************************************************************************************************************************
                                  *                                 *                                 *
 DA MON HRMN  ORD      FLOW       *  DA MON HRMN  ORD      FLOW     *  DA MON HRMN  ORD      FLOW     *  DA MON HRMN  ORD      FLOW
                                  *                                 *                                 *
  1     0000    1        0.       *   1     1500   76      142.     *   2     0600  151        0.      *   2     2100  226        0.
  1     0012    2        0.       *   1     1512   77      126.     *   2     0612  152        0.      *   2     2112  227        0.
  1     0024    3        0.       *   1     1524   78      113.     *   2     0624  153        0.      *   2     2124  228        0.
  1     0036    4        0.       *   1     1536   79      101.     *   2     0636  154        0.      *   2     2136  229        0.
  1     0048    5        0.       *   1     1548   80       90.     *   2     0648  155        0.      *   2     2148  230        0.
  1     0100    6        0.       *   1     1600   81       81.     *   2     0700  156        0.      *   2     2200  231        0.
  1     0112    7        0.       *   1     1612   82       72.     *   2     0712  157        0.      *   2     2212  232        0.
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1	0124	8	0.	*	1	1624	83	65.	*	2	0724	158	0.	*	2	2224	233	0.
1	0136	9	0.	*	1	1636	84	58.	*	2	0736	159	0.	*	2	2236	234	0.
1	0148	10	0.	*	1	1648	85	53.	*	2	0748	160	0.	*	2	2248	235	0.
1	0200	11	0.	*	1	1700	86	48.	*	2	0800	161	0.	*	2	2300	236	0.
1	0212	12	0.	*	1	1712	87	45.	*	2	0812	162	0.	*	2	2312	237	0.
1	0224	13	0.	*	1	1724	88	42.	*	2	0824	163	0.	*	2	2324	238	0.
1	0236	14	0.	*	1	1736	89	39.	*	2	0836	164	0.	*	2	2336	239	0.
1	0248	15	0.	*	1	1748	90	37.	*	2	0848	165	0.	*	2	2348	240	0.
1	0300	16	0.	*	1	1800	91	35.	*	2	0900	166	0.	*	3	0000	241	0.
1	0312	17	0.	*	1	1812	92	34.	*	2	0912	167	0.	*	3	0012	242	0.
1	0324	18	0.	*	1	1824	93	32.	*	2	0924	168	0.	*	3	0024	243	0.
1	0336	19	0.	*	1	1836	94	32.	*	2	0936	169	0.	*	3	0036	244	0.
1	0348	20	0.	*	1	1848	95	32.	*	2	0948	170	0.	*	3	0048	245	0.
1	0400	21	0.	*	1	1900	96	32.	*	2	1000	171	0.	*	3	0100	246	0.
1	0412	22	0.	*	1	1912	97	32.	*	2	1012	172	0.	*	3	0112	247	0.
1	0424	23	0.	*	1	1924	98	32.	*	2	1024	173	0.	*	3	0124	248	0.
1	0436	24	0.	*	1	1936	99	33.	*	2	1036	174	0.	*	3	0136	249	0.
1	0448	25	0.	*	1	1948	100	33.	*	2	1048	175	0.	*	3	0148	250	0.
1	0500	26	0.	*	1	2000	101	33.	*	2	1100	176	0.	*	3	0200	251	0.
1	0512	27	0.	*	1	2012	102	33.	*	2	1112	177	0.	*	3	0212	252	0.
1	0524	28	0.	*	1	2024	103	32.	*	2	1124	178	0.	*	3	0224	253	0.
1	0536	29	0.	*	1	2036	104	32.	*	2	1136	179	0.	*	3	0236	254	0.
1	0548	30	0.	*	1	2048	105	32.	*	2	1148	180	0.	*	3	0248	255	0.
1	0600	31	0.	*	1	2100	106	31.	*	2	1200	181	0.	*	3	0300	256	0.
1	0612	32	0.	*	1	2112	107	31.	*	2	1212	182	0.	*	3	0312	257	0.
1	0624	33	0.	*	1	2124	108	30.	*	2	1224	183	0.	*	3	0324	258	0.
1	0636	34	0.	*	1	2136	109	29.	*	2	1236	184	0.	*	3	0336	259	0.
1	0648	35	0.	*	1	2148	110	29.	*	2	1248	185	0.	*	3	0348	260	0.
1	0700	36	0.	*	1	2200	111	28.	*	2	1300	186	0.	*	3	0400	261	0.
1	0712	37	0.	*	1	2212	112	28.	*	2	1312	187	0.	*	3	0412	262	0.
1	0724	38	0.	*	1	2224	113	27.	*	2	1324	188	0.	*	3	0424	263	0.
1	0736	39	0.	*	1	2236	114	27.	*	2	1336	189	0.	*	3	0436	264	0.
1	0748	40	0.	*	1	2248	115	27.	*	2	1348	190	0.	*	3	0448	265	0.
1	0800	41	0.	*	1	2300	116	26.	*	2	1400	191	0.	*	3	0500	266	0.
1	0812	42	0.	*	1	2312	117	26.	*	2	1412	192	0.	*	3	0512	267	0.
1	0824	43	0.	*	1	2324	118	25.	*	2	1424	193	0.	*	3	0524	268	0.
1	0836	44	0.	*	1	2336	119	25.	*	2	1436	194	0.	*	3	0536	269	0.
1	0848	45	0.	*	1	2348	120	25.	*	2	1448	195	0.	*	3	0548	270	0.
1	0900	46	0.	*	2	0000	121	24.	*	2	1500	196	0.	*	3	0600	271	0.
1	0912	47	0.	*	2	0012	122	24.	*	2	1512	197	0.	*	3	0612	272	0.
1	0924	48	0.	*	2	0024	123	23.	*	2	1524	198	0.	*	3	0624	273	0.
1	0936	49	0.	*	2	0036	124	21.	*	2	1536	199	0.	*	3	0636	274	0.
1	0948	50	0.	*	2	0048	125	19.	*	2	1548	200	0.	*	3	0648	275	0.
1	1000	51	0.	*	2	0100	126	17.	*	2	1600	201	0.	*	3	0700	276	0.
1	1012	52	0.	*	2	0112	127	14.	*	2	1612	202	0.	*	3	0712	277	0.
1	1024	53	0.	*	2	0124	128	12.	*	2	1624	203	0.	*	3	0724	278	0.
1	1036	54	0.	*	2	0136	129	10.	*	2	1636	204	0.	*	3	0736	279	0.
1	1048	55	0.	*	2	0148	130	8.	*	2	1648	205	0.	*	3	0748	280	0.
1	1100	56	0.	*	2	0200	131	6.	*	2	1700	206	0.	*	3	0800	281	0.
1	1112	57	0.	*	2	0212	132	5.	*	2	1712	207	0.	*	3	0812	282	0.
1	1124	58	0.	*	2	0224	133	4.	*	2	1724	208	0.	*	3	0824	283	0.
1	1136	59	0.	*	2	0236	134	3.	*	2	1736	209	0.	*	3	0836	284	0.
1	1148	60	0.	*	2	0248	135	2.	*	2	1748	210	0.	*	3	0848	285	0.
1	1200	61	0.	*	2	0300	136	2.	*	2	1800	211	0.	*	3	0900	286	0.
1	1212	62	9.	*	2	0312	137	1.	*	2	1812	212	0.	*	3	0912	287	0.
1	1224	63	34.	*	2	0324	138	1.	*	2	1824	213	0.	*	3	0924	288	0.
1	1236	64	84.	*	2	0336	139	1.	*	2	1836	214	0.	*	3	0936	289	0.
1	1248	65	140.	*	2	0348	140	1.	*	2	1848	215	0.	*	3	0948	290	0.
1	1300	66	263.	*	2	0400	141	1.	*	2	1900	216	0.	*	3	1000	291	0.
1	1312	67	351.	*	2	0412	142	0.	*	2	1912	217	0.	*	3	1012	292	0.
1	1324	68	386.	*	2	0424	143	0.	*	2	1924	218	0.	*	3	1024	293	0.
1	1336	69	375.	*	2	0436	144	0.	*	2	1936	219	0.	*	3	1036	294	0.
1	1348	70	339.	*	2	0448	145	0.	*	2	1948	220	0.	*	3	1048	295	0.
1	1400	71	294.	*	2	0500	146	0.	*	2	2000	221	0.	*	3	1100	296	0.
1	1412	72	251.	*	2	0512	147	0.	*	2	2012	222	0.	*	3	1112	297	0.
1	1424	73	215.	*	2	0524	148	0.	*	2	2024	223	0.	*	3	1124	298	0.
1	1436	74	185.	*	2	0536	149	0.	*	2	2036	224	0.	*	3	1136	299	0.
1	1448	75	161.	*	2	0548	150	0.	*	2	2048	225	0.	*	3	1148	300	0.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
386.	13.40	(CFS)	142.	44.	18.	18.
		(INCHES)	.721	.898	.898	.898
		(AC-FT)	70.	88.	88.	88.

CUMULATIVE AREA = 1.83 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	SECT25	211.	13.40	77.	24.	10.	1.00		
ROUTED TO	RT1	211.	13.60	76.	24.	9.	1.00		
HYDROGRAPH AT	SECT36	197.	13.20	67.	21.	8.	.83		
2 COMBINED AT	OUTLTA	386.	13.40	142.	44.	18.	1.83		

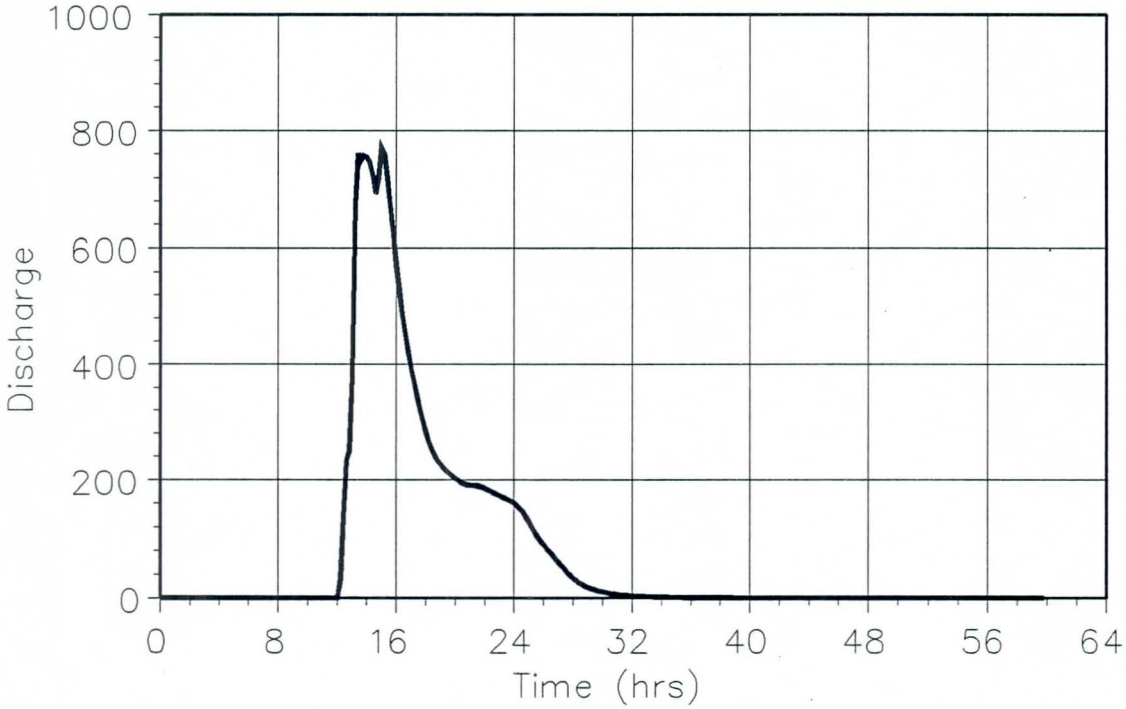
SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
RT1	3	1.63	210.96	820.80	.88	12.00	210.57	816.00	.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= 47.026 EXCESS= .000 OUTFLOW= 46.970 BASIN STORAGE= .000 PERCENT ERROR= .119

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

Outlet B - Model



Location: Southwest Loop and Kyrene Road
Volume: 391 Acre-Feet
Peak Q: 770 Cubic Feet per Second

OUTLET B INFLOW HYDROGRAPH

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: OUTLETB

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/15/1989  TIME  14:58:31 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*                                      *
*                                      *
****************************************
```

```
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
```

```
:::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::
:::                                     :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION  :::
:::                                     :::
:::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::
```


==========
H A E S T A D M E T H O D S
==========

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

              *DIAGRAM
  1           ID       PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR OUTLET-B BASIN
  2           ID       CONTRIBUTING SECTIONS LISTED BELOW:
  3           ID            SECTION 9, 10, 11, 12, 13, 14, 15, 16-1, 21-1, 22, 23, 24,
  4           ID                    25, 26, 27, 28-1, 33, 34, 35, 36
  5           ID       INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  6           ID       100 YEAR - 24 HOUR STORM (BALANCED TRIANGULAR DISTRIBUTION)
  7           ID       HDR - PHOENIX
  8           ID
  9           ID
 10           IT      12                     300
 11           IO       3       0       0
              *

 12           KK   SECT9
 13           KM        TEMPE
 14           KM        COMPUTE RUNOFF FOR SECTION 9
 15           KO       1       2
 16           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 17           BA    0.33
 18           LS    1.94      83
 19           UD    0.44
              *

 20           KK  SECT10   OUTLET 3
 21           KM        TEMPE
 22           KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 10 - OUTLET 3
 23           BA    0.03
 24           LS    1.50      83
 25           UD    0.92
              *

 26           KK  SECT10   OUTLET 2
 27           KM        TEMPE
 28           KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 10 - OUTLET 2
 29           BA    0.19
 30           LS    2.25      88
 31           UD    0.53
              *

 32           KK     RT1
 33           KM        ROUTE SECTION 10 OUTLET 2 HYDROGRAPH TO KYRENE/ELLIOT INTERSECTION
 34           RK    2100  0.0010   0.016            TRAP     0.0    25.0
              *

 35           KK   COMB1
 36           KM        COMBINE SECT9 * SECRT10-3 * RT1 TO GIVE HYDROGRAPH AT KYRENE/ELLIOT
 37           HC       3
              *
```

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

  38          KK     RT2
  39          KM        ROUTE COMB1 HYDROGRAPH TO KYRENE/WARNER INTERSECTION
  40          RK    5280  0.0004   0.016            TRAP     0.0    25.0
              *

  41          KK  SECT16   OUTLET 1
  42          KM        TEMPE
  43          KM        COMPUTE RUNOFF HYDROGRAPH FIR SECTION 16 - OUTLET 1
  44          BA    0.14
  45          LS    1.54      83
  46          UD    0.41
              *

  47          KK  SECT15   OUTLET 2
  48          KM        TEMPE
  49          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 15 - OUTLET 2
  50          BA    0.31
  51          LS    1.45      83
  52          UD    0.98
              *

  53          KK   COMB2
  54          KM        COMBINE RT2 * SECT16-1 * SECT15-2 TO GIVE HYDROGRAPH AT KYRENE/WARNER
  55          HC       3
              *

  56          KK     RT3
  57          KM        ROUTE COMB2 HYDROGRAPH TO KYRENE/RAY INTERSECTION
  58          RK    5280  0.0020   0.016            TRAP     0.0    25.0
              *

  59          KK  SECT21   OUTLET 1
  60          KM        TEMPE
  61          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 21 - OUTLET 1
  62          BA    0.42
  63          LS    1.41      83
  64          UD    0.61
              *

  65          KK  SECT22   OUTLET 1
  66          KM        TEMPE
  67          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 22 - OUTLET 1
  68          BA    0.82
  69          LS    2.26      83
  70          UD    0.38
              *

  71          KK   COMB3
  72          KM        COMBINE RT3 * SECT21-1 * SECT22-1 TO GIVE HYDROGRAPH AT KYRENE/RAY
  73          HC       3
              *
```

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

  74          KK     RT4
  75          KM        ROUTE COMB3 HYDROGRAPH TO KYRENE/CHANDLER INTERSECTION
  76          RK    5280  0.0019   0.016            TRAP     0.0    25.0
              *

  77          KK  SECT12
  78          KM        TEMPE
  79          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 12
  80          BA    0.50
  81          LS    3.00      83
  82          UD    0.58
              *

  83          KK     RT5
  84          KM        ROUTE SECT12 HYDROGRAPH TO SECT11 CONFLUENCE
  85          RK    2600  0.0006   0.016            TRAP     0.0    25.0
              *

  86          KK  SECT11
  87          KM        TEMPE
  88          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 11
  89          BA    0.51
  90          LS    2.41      86
  91          UD    0.71
              *

  92          KK   COMB4
  93          KM        COMBINE SECT12 * SECT11 HYDROGRAPHS
  94          HC       2
              *

  95          KK     RT6
  96          KM        ROUTE COMB4 HYDROGRAPH TO RURAL/ELLIOT INTERSECTION
  97          RK    2600  0.0006   0.016            TRAP     0.0    25.0
              *

  98          KK  SECT10   OUTLT 1
  99          KM        TEMPE
 100          KM        COMPUTE RUNOFF D\HYDROGRAPH FOR SECTION 10 - OUTLET 1
 101          BA    0.50
 102          LS    2.41      84
 103          UD    0.36
              *

 104          KK   COMB5
 105          KM        COMBINE SECT10-1 * RT6 HYDROGRAPHS
 106          HC       2
              *
```

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

 107          KK     RT7
 108          KM        ROUTE COMB5 HYDROGRAPH TO RURAL/WARNER INTERSECTION
 109          RK    5280  0.0006   0.016            TRAP     0.0    25.0
              *

 110          KK  SECT13
 111          KM        TEMPE
 112          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 13
 113          BA    1.00
 114          LS    2.72      88
 115          UD    0.32
              *

 116          KK     RT8
 117          KM        ROUTE SECT13 HYDROGRAPH TO RURAL/WARNER INTERSECTION
 118          RK    5280  0.0009   0.016            TRAP     0.0    25.0
              *

 119          KK  SECT14
 120          KM        TEMPE
 121          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 14
 122          BA    1.00
 123          LS    2.83    75.7
 124          UD    0.75
              *

 125          KK  SECT15    OUTLET 1
 126          KM        TEMPE
 127          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 15 - OUTLET 1
 128          BA    0.69
 129          LS    2.18      81
 130          UD    0.82
              *

 131          KK   COMB6
 132          KM        COMBINE RT7 * RT8 * SECT14 * SECT15-1 TO GIVE HYDROGRAPH AT
 133          KM        RURAL/CHAMDLER INTERSECTION
 134          HC       4
              *

 135          KK     RT9
 136          KM        ROUTE COMB6  HYDROGRAPH TO RURAL/CHANDLER INTERSECTION
 137          RK    5280  0.0006   0.016            TRAP     0.0    25.0
              *

 138          KK  SECT24
 139          KM        TEMPE
 140          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 24
 141          BA    1.00
 142          LS    2.77      83
 143          UD    0.60
              *
```

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

 144          KK    RT10
 145          KM        ROUTE SECT24 HYDROGRAPH TO SECT23 CONFLUENCE
 146          RK    5280  0.0011   0.016            TRAP     0.0    25.0
              *

 147          KK  SECT23
 148          KM        TEMPE
 149          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 23
 150          BA    1.00
 151          LS    2.97      83
 152          UD    0.78
              *

 153          KK  SECT22   OUTLET 2
 154          KM        TEMPE
 155          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 22 - OUTLET 2
 156          BA    0.13
 157          LS    1.45      83
 158          UD    0.33
              *

 159          KK   COMB7
 160          KM        COMBINE RT9 * RT10 * SECT22-2 * SECT23 TO GIVE HYDROGRAPH AT
 161          KM        RURAL/RAY INTERSECTION
 162          HC       4
              *

 163          KK    RT11
 164          KM        ROUTE COMB7 HYDROGRAPH TO RURAL/CHANDLER INTERSECTION
 165          RK    5280  0.0009   0.016            TRAO     0.0    25.0
              *

 166          KK  SECT26
 167          KM        CHANDLER
 168          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 26
 169          BA    1.00
 170          LS    1.82      85
 171          UD    1.96
              *

 172          KK   COMB8
 173          KM        COMBINE RT11 * SECT26
 174          HC       2
              *

 175          KK    RT12
 176          KM        ROUTE COMB8 HYDROGRAPH TO KYRENE/CHNADLER INTERSECTION
 177          RK    5280  0.0009   0.016            TRAP     0.0    25.0
              *
```

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

  178         KK  SECT28   OUTLET 1
  179         KM        CHANDLER
  180         KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 28 - OUT.ET 1
  181         BA    0.69
  182         LS    2.51      85
  183         UD    0.35
              *

  184         KK  SECT27
  185         KM        CHANDLER
  186         KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 27
  187         BA    1.00
  188         LS    2.18      88
  189         UD    1.38
              *

  190         KK   SOMB9
  191         KM        COMBINE SECT27 * RT13 * RT12 * RT4 TO GIVE HYDROGRAPH AT
  192         KM        KYRENE/CHANDLER INTERSECTION
  193         HC       4
              *

  194         KK    RT13
  195         KM        ROUTE COMB9 HYDROGRAPH TO KYRENE/SOUTHWEST LOOP INTERSECTION
  196         RK    4000  0.0006   0.016            TRAP     0.0    25.0
              *

  197         KK  SECT35
  198         KM        CHANDLER
  199         KM        COMPUTE RUNOFF FOR SECTION 35
  200         BA    1.09
  201         LS    2.38      83
  202         UD    0.23
              *

  203         KK    RT14
  204         KM        ROUTE HYDROGRAPH TO KYRENE/SOUTHWEST LOOP INTERSECTION
  205         RK    4300  0.0008   0.016            TRAP     0.0    25.0
              *

  206         KK  SECT34
  207         KM        CHANDLER
  208         KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 34
  209         BA    0.67
  210         LS    2.04      83
  211         UD    1.05
              *

  212         KK  SECT33   OUTLET 2
  213         KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 33 - OUTLET 2
  214         BA    0.26
  215         LS    1.53      86
  216         UD    0.54
              *
```

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

 217          KK  SECT33   OUTLET 1
 218          KM        CHANDLER
 219          KM        COMPUTE RUNOFF HYDROGRAPH FOR SECTION 33 - OUTLET 1
 220          BA    0.53
 221          LS    2.22      82
 222          UD    0.18
              *

 223          KK  OUTLTB
 224          KM        COMBINE SECT33-1 * SECT33-2 * SECT34 * RT14 * RT15
 225          KO       1       2                    60
 226          HC       5
              *
 227          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  12       SECT9
               .
               .
  20           .      SECT10
               .          .
               .          .
  26           .          .      SECT10
               .          .          V
               .          .          V
  32           .          .        RT1
               .          .          .
               .          .          .
  35       COMB1.......................
               V
               V
  38         RT2
               .
               .
  41           .      SECT16
               .          .
               .          .
  47           .          .      SECT15
               .          .          .
               .          .          .
  53       COMB2.......................
               V
               V
  56         RT3
               .
               .
  59           .      SECT21
               .          .
               .          .
  65           .          .      SECT22
               .          .          .
               .          .          .
  71       COMB3.......................
               V
               V
  74         RT4
               .
               .
  77           .      SECT12
               .          V
               .          V
  83           .        RT5
               .          .
               .          .
  86           .          .      SECT11
               .          .          .
               .          .          .
  92           .      COMB4............
               .          V
```

```
          .        V
 95       .      RT6
          .        .
          .        .
 98       .        .     SECT10
          .        .        .
          .        .        .
104       .     COMB5............
          .        V
          .        V
107       .      RT7
          .        .
          .        .
110       .        .     SECT13
          .        .        V
          .        .        V
116       .        .       RT8
          .        .        .
          .        .        .
119       .        .        .     SECT14
          .        .        .        .
          .        .        .        .
125       .        .        .        .     SECT15
          .        .        .        .        .
          .        .        .        .        .
131       .     COMB6.................................
          .        V
          .        V
135       .      RT9
          .        .
          .        .
138       .        .     SECT24
          .        .        V
          .        .        V
144       .        .      RT10
          .        .        .
          .        .        .
147       .        .        .     SECT23
          .        .        .        .
          .        .        .        .
153       .        .        .        .     SECT22
          .        .        .        .        .
          .        .        .        .        .
159       .     COMB7.................................
          .        V
          .        V
163       .     RT11
          .        .
          .        .
166       .        .     SECT26
          .        .        .
          .        .        .
172       .     COMB8............
          .        V
          .        V
175       .     RT12
          .        .
          .        .
178       .        .     SECT28
          .        .        .
```

```
                .          .          .
184             .          .          .     SECT27
                .          .          .          .
                .          .          .          .
190        SOMB9.................................
                V
                V
194         RT13
                .
                .
197             .     SECT35
                .          V
                .          V
203             .       RT14
                .          .
                .          .
206             .          .     SECT34
                .          .          .
                .          .          .
212             .          .          .     SECT33
                .          .          .          .
                .          .          .          .
217             .          .          .          .     SECT33
                .          .          .          .          .
                .          .          .          .          .
223        OUTLTB.............................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: OUTLETB

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/15/1989  TIME  14:58:31 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
****************************************
```

PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR OUTLET-B BASIN
CONTRIBUTING SECTIONS LISTED BELOW:
SECTION 9, 10, 11, 12, 13, 14, 15, 16-1, 21-1, 22, 23, 24,
25, 26, 27, 28-1, 33, 34, 35, 36
INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
100 YEAR - 24 HOUR STORM (BALANCED TRIANGULAR DISTRIBUTION)
HDR - PHOENIX

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

    IT        HYDROGRAPH TIME DATA
                     NMIN         12  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      3    0  ENDING DATE
                   NDTIME       1148  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .20 HOURS
                   TOTAL TIME BASE   59.80 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
```

*** ***

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

```
12 KK     *     SECT9  *
          *            *
          **************
                              TEMPE
                              COMPUTE RUNOFF FOR SECTION 9

15 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           1  PRINT CONTROL
                     IPLOT           2  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

            SUBBASIN RUNOFF DATA

17 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .33  SUBBASIN AREA

               PRECIPITATION DATA

16 PH                                 DEPTHS FOR   1-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
                 .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

18 LS          SCS LOSS RATE
                     STRTL        1.94  INITIAL ABSTRACTION
                    CRVNBR       83.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

19 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         .44  LAG

                                                   ***

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

                                                UNIT HYDROGRAPH
                                            13 END-OF-PERIOD ORDINATES
              81.      255.      290.      206.      106.      59.      32.      17.      10.      5.
               3.        2.        1.

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

                                            HYDROGRAPH AT STATION    SECT9

*****************************************************************************************************************************
                                                          *
     DA MON HRMN  ORD    RAIN    LOSS  EXCESS    COMP Q   *    DA MON HRMN  ORD    RAIN    LOSS  EXCESS    COMP Q
                                                          *
      1    0000    1     .00     .00     .00        0.    *     2    0600  151     .00     .00     .00        0.
      1    0012    2     .00     .00     .00        0.    *     2    0612  152     .00     .00     .00        0.
      1    0024    3     .01     .01     .00        0.    *     2    0624  153     .00     .00     .00        0.
      1    0036    4     .01     .01     .00        0.    *     2    0636  154     .00     .00     .00        0.
      1    0048    5     .01     .01     .00        0.    *     2    0648  155     .00     .00     .00        0.
      1    0100    6     .01     .01     .00        0.    *     2    0700  156     .00     .00     .00        0.
      1    0112    7     .01     .01     .00        0.    *     2    0712  157     .00     .00     .00        0.
      1    0124    8     .01     .01     .00        0.    *     2    0724  158     .00     .00     .00        0.
      1    0136    9     .01     .01     .00        0.    *     2    0736  159     .00     .00     .00        0.
      1    0148   10     .01     .01     .00        0.    *     2    0748  160     .00     .00     .00        0.
```

1	0200	11	.01	.01	.00	0.	*	2	0800	161	.00	.00	.00	0.
1	0212	12	.01	.01	.00	0.	*	2	0812	162	.00	.00	.00	0.
1	0224	13	.01	.01	.00	0.	*	2	0824	163	.00	.00	.00	0.
1	0236	14	.01	.01	.00	0.	*	2	0836	164	.00	.00	.00	0.
1	0248	15	.01	.01	.00	0.	*	2	0848	165	.00	.00	.00	0.
1	0300	16	.01	.01	.00	0.	*	2	0900	166	.00	.00	.00	0.
1	0312	17	.01	.01	.00	0.	*	2	0912	167	.00	.00	.00	0.
1	0324	18	.01	.01	.00	0.	*	2	0924	168	.00	.00	.00	0.
1	0336	19	.01	.01	.00	0.	*	2	0936	169	.00	.00	.00	0.
1	0348	20	.01	.01	.00	0.	*	2	0948	170	.00	.00	.00	0.
1	0400	21	.01	.01	.00	0.	*	2	1000	171	.00	.00	.00	0.
1	0412	22	.01	.01	.00	0.	*	2	1012	172	.00	.00	.00	0.
1	0424	23	.01	.01	.00	0.	*	2	1024	173	.00	.00	.00	0.
1	0436	24	.01	.01	.00	0.	*	2	1036	174	.00	.00	.00	0.
1	0448	25	.01	.01	.00	0.	*	2	1048	175	.00	.00	.00	0.
1	0500	26	.01	.01	.00	0.	*	2	1100	176	.00	.00	.00	0.
1	0512	27	.01	.01	.00	0.	*	2	1112	177	.00	.00	.00	0.
1	0524	28	.01	.01	.00	0.	*	2	1124	178	.00	.00	.00	0.
1	0536	29	.01	.01	.00	0.	*	2	1136	179	.00	.00	.00	0.
1	0548	30	.01	.01	.00	0.	*	2	1148	180	.00	.00	.00	0.
1	0600	31	.01	.01	.00	0.	*	2	1200	181	.00	.00	.00	0.
1	0612	32	.01	.01	.00	0.	*	2	1212	182	.00	.00	.00	0.
1	0624	33	.01	.01	.00	0.	*	2	1224	183	.00	.00	.00	0.
1	0636	34	.01	.01	.00	0.	*	2	1236	184	.00	.00	.00	0.
1	0648	35	.01	.01	.00	0.	*	2	1248	185	.00	.00	.00	0.
1	0700	36	.01	.01	.00	0.	*	2	1300	186	.00	.00	.00	0.
1	0712	37	.01	.01	.00	0.	*	2	1312	187	.00	.00	.00	0.
1	0724	38	.01	.01	.00	0.	*	2	1324	188	.00	.00	.00	0.
1	0736	39	.01	.01	.00	0.	*	2	1336	189	.00	.00	.00	0.
1	0748	40	.01	.01	.00	0.	*	2	1348	190	.00	.00	.00	0.
1	0800	41	.01	.01	.00	0.	*	2	1400	191	.00	.00	.00	0.
1	0812	42	.01	.01	.00	0.	*	2	1412	192	.00	.00	.00	0.
1	0824	43	.01	.01	.00	0.	*	2	1424	193	.00	.00	.00	0.
1	0836	44	.01	.01	.00	0.	*	2	1436	194	.00	.00	.00	0.
1	0848	45	.01	.01	.00	0.	*	2	1448	195	.00	.00	.00	0.
1	0900	46	.01	.01	.00	0.	*	2	1500	196	.00	.00	.00	0.
1	0912	47	.02	.02	.00	0.	*	2	1512	197	.00	.00	.00	0.
1	0924	48	.02	.02	.00	0.	*	2	1524	198	.00	.00	.00	0.
1	0936	49	.02	.02	.00	0.	*	2	1536	199	.00	.00	.00	0.
1	0948	50	.02	.02	.00	0.	*	2	1548	200	.00	.00	.00	0.
1	1000	51	.02	.02	.00	0.	*	2	1600	201	.00	.00	.00	0.
1	1012	52	.02	.02	.00	0.	*	2	1612	202	.00	.00	.00	0.
1	1024	53	.03	.03	.00	0.	*	2	1624	203	.00	.00	.00	0.
1	1036	54	.03	.03	.00	0.	*	2	1636	204	.00	.00	.00	0.
1	1048	55	.03	.03	.00	0.	*	2	1648	205	.00	.00	.00	0.
1	1100	56	.04	.04	.00	0.	*	2	1700	206	.00	.00	.00	0.
1	1112	57	.04	.04	.00	0.	*	2	1712	207	.00	.00	.00	0.
1	1124	58	.05	.05	.00	0.	*	2	1724	208	.00	.00	.00	0.
1	1136	59	.07	.07	.00	0.	*	2	1736	209	.00	.00	.00	0.
1	1148	60	.23	.23	.00	0.	*	2	1748	210	.00	.00	.00	0.
1	1200	61	.44	.44	.00	0.	*	2	1800	211	.00	.00	.00	0.
1	1212	62	1.09	.98	.11	8.	*	2	1812	212	.00	.00	.00	0.
1	1224	63	.29	.17	.13	37.	*	2	1824	213	.00	.00	.00	0.
1	1236	64	.19	.09	.10	71.	*	2	1836	214	.00	.00	.00	0.
1	1248	65	.06	.03	.03	86.	*	2	1848	215	.00	.00	.00	0.
1	1300	66	.05	.02	.03	76.	*	2	1900	216	.00	.00	.00	0.
1	1312	67	.04	.02	.02	58.	*	2	1912	217	.00	.00	.00	0.
1	1324	68	.03	.01	.02	43.	*	2	1924	218	.00	.00	.00	0.
1	1336	69	.03	.01	.02	33.	*	2	1936	219	.00	.00	.00	0.
1	1348	70	.03	.01	.02	27.	*	2	1948	220	.00	.00	.00	0.

1	1400	71	.02	.01	.02	23.	*	2	2000	221	.00	.00	.00	0.
1	1412	72	.02	.01	.01	20.	*	2	2012	222	.00	.00	.00	0.
1	1424	73	.02	.01	.01	18.	*	2	2024	223	.00	.00	.00	0.
1	1436	74	.02	.01	.01	16.	*	2	2036	224	.00	.00	.00	0.
1	1448	75	.02	.01	.01	15.	*	2	2048	225	.00	.00	.00	0.
1	1500	76	.02	.01	.01	14.	*	2	2100	226	.00	.00	.00	0.
1	1512	77	.01	.00	.01	13.	*	2	2112	227	.00	.00	.00	0.
1	1524	78	.01	.00	.01	11.	*	2	2124	228	.00	.00	.00	0.
1	1536	79	.01	.00	.01	10.	*	2	2136	229	.00	.00	.00	0.
1	1548	80	.01	.00	.01	8.	*	2	2148	230	.00	.00	.00	0.
1	1600	81	.01	.00	.01	8.	*	2	2200	231	.00	.00	.00	0.
1	1612	82	.01	.00	.01	7.	*	2	2212	232	.00	.00	.00	0.
1	1624	83	.01	.00	.01	7.	*	2	2224	233	.00	.00	.00	0.
1	1636	84	.01	.00	.01	6.	*	2	2236	234	.00	.00	.00	0.
1	1648	85	.01	.00	.01	6.	*	2	2248	235	.00	.00	.00	0.
1	1700	86	.01	.00	.00	6.	*	2	2300	236	.00	.00	.00	0.
1	1712	87	.01	.00	.00	6.	*	2	2312	237	.00	.00	.00	0.
1	1724	88	.01	.00	.00	5.	*	2	2324	238	.00	.00	.00	0.
1	1736	89	.01	.00	.00	5.	*	2	2336	239	.00	.00	.00	0.
1	1748	90	.01	.00	.00	5.	*	2	2348	240	.00	.00	.00	0.
1	1800	91	.01	.00	.00	5.	*	3	0000	241	.00	.00	.00	0.
1	1812	92	.01	.00	.01	5.	*	3	0012	242	.00	.00	.00	0.
1	1824	93	.01	.00	.01	5.	*	3	0024	243	.00	.00	.00	0.
1	1836	94	.01	.00	.01	6.	*	3	0036	244	.00	.00	.00	0.
1	1848	95	.01	.00	.01	6.	*	3	0048	245	.00	.00	.00	0.
1	1900	96	.01	.00	.01	6.	*	3	0100	246	.00	.00	.00	0.
1	1912	97	.01	.00	.01	6.	*	3	0112	247	.00	.00	.00	0.
1	1924	98	.01	.00	.01	6.	*	3	0124	248	.00	.00	.00	0.
1	1936	99	.01	.00	.00	6.	*	3	0136	249	.00	.00	.00	0.
1	1948	100	.01	.00	.00	5.	*	3	0148	250	.00	.00	.00	0.
1	2000	101	.01	.00	.00	5.	*	3	0200	251	.00	.00	.00	0.
1	2012	102	.01	.00	.00	5.	*	3	0212	252	.00	.00	.00	0.
1	2024	103	.01	.00	.00	5.	*	3	0224	253	.00	.00	.00	0.
1	2036	104	.01	.00	.00	5.	*	3	0236	254	.00	.00	.00	0.
1	2048	105	.01	.00	.00	5.	*	3	0248	255	.00	.00	.00	0.
1	2100	106	.01	.00	.00	5.	*	3	0300	256	.00	.00	.00	0.
1	2112	107	.01	.00	.00	5.	*	3	0312	257	.00	.00	.00	0.
1	2124	108	.01	.00	.00	5.	*	3	0324	258	.00	.00	.00	0.
1	2136	109	.01	.00	.00	5.	*	3	0336	259	.00	.00	.00	0.
1	2148	110	.01	.00	.00	5.	*	3	0348	260	.00	.00	.00	0.
1	2200	111	.01	.00	.00	4.	*	3	0400	261	.00	.00	.00	0.
1	2212	112	.01	.00	.00	4.	*	3	0412	262	.00	.00	.00	0.
1	2224	113	.01	.00	.00	4.	*	3	0424	263	.00	.00	.00	0.
1	2236	114	.01	.00	.00	4.	*	3	0436	264	.00	.00	.00	0.
1	2248	115	.01	.00	.00	4.	*	3	0448	265	.00	.00	.00	0.
1	2300	116	.01	.00	.00	4.	*	3	0500	266	.00	.00	.00	0.
1	2312	117	.01	.00	.00	4.	*	3	0512	267	.00	.00	.00	0.
1	2324	118	.01	.00	.00	4.	*	3	0524	268	.00	.00	.00	0.
1	2336	119	.01	.00	.00	4.	*	3	0536	269	.00	.00	.00	0.
1	2348	120	.01	.00	.00	4.	*	3	0548	270	.00	.00	.00	0.
2	0000	121	.01	.00	.00	4.	*	3	0600	271	.00	.00	.00	0.
2	0012	122	.00	.00	.00	4.	*	3	0612	272	.00	.00	.00	0.
2	0024	123	.00	.00	.00	3.	*	3	0624	273	.00	.00	.00	0.
2	0036	124	.00	.00	.00	2.	*	3	0636	274	.00	.00	.00	0.
2	0048	125	.00	.00	.00	1.	*	3	0648	275	.00	.00	.00	0.
2	0100	126	.00	.00	.00	0.	*	3	0700	276	.00	.00	.00	0.
2	0112	127	.00	.00	.00	0.	*	3	0712	277	.00	.00	.00	0.
2	0124	128	.00	.00	.00	0.	*	3	0724	278	.00	.00	.00	0.
2	0136	129	.00	.00	.00	0.	*	3	0736	279	.00	.00	.00	0.
2	0148	130	.00	.00	.00	0.	*	3	0748	280	.00	.00	.00	0.

2	0200	131	.00	.00	.00	0.	*	3	0800	281	.00	.00	.00	0.
2	0212	132	.00	.00	.00	0.	*	3	0812	282	.00	.00	.00	0.
2	0224	133	.00	.00	.00	0.	*	3	0824	283	.00	.00	.00	0.
2	0236	134	.00	.00	.00	0.	*	3	0836	284	.00	.00	.00	0.
2	0248	135	.00	.00	.00	0.	*	3	0848	285	.00	.00	.00	0.
2	0300	136	.00	.00	.00	0.	*	3	0900	286	.00	.00	.00	0.
2	0312	137	.00	.00	.00	0.	*	3	0912	287	.00	.00	.00	0.
2	0324	138	.00	.00	.00	0.	*	3	0924	288	.00	.00	.00	0.
2	0336	139	.00	.00	.00	0.	*	3	0936	289	.00	.00	.00	0.
2	0348	140	.00	.00	.00	0.	*	3	0948	290	.00	.00	.00	0.
2	0400	141	.00	.00	.00	0.	*	3	1000	291	.00	.00	.00	0.
2	0412	142	.00	.00	.00	0.	*	3	1012	292	.00	.00	.00	0.
2	0424	143	.00	.00	.00	0.	*	3	1024	293	.00	.00	.00	0.
2	0436	144	.00	.00	.00	0.	*	3	1036	294	.00	.00	.00	0.
2	0448	145	.00	.00	.00	0.	*	3	1048	295	.00	.00	.00	0.
2	0500	146	.00	.00	.00	0.	*	3	1100	296	.00	.00	.00	0.
2	0512	147	.00	.00	.00	0.	*	3	1112	297	.00	.00	.00	0.
2	0524	148	.00	.00	.00	0.	*	3	1124	298	.00	.00	.00	0.
2	0536	149	.00	.00	.00	0.	*	3	1136	299	.00	.00	.00	0.
2	0548	150	.00	.00	.00	0.	*	3	1148	300	.00	.00	.00	0.
							*							

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TOTAL RAINFALL = 3.62, TOTAL LOSS = 2.86, TOTAL EXCESS = .76

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
86.	12.80	(CFS)	22.	7.	3.	3.
		(INCHES)	.611	.757	.757	.757
		(AC-FT)	11.	13.	13.	13.

CUMULATIVE AREA = .33 SQ MI

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


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          *            *
 20 KK    *   SECT10   *        OUTLET 3
          *            *
          **************
                              TEMPE
                              COMPUTE RUNOFF HYDROGRAPH FOR SECTION 10 - OUTLET 3

             SUBBASIN RUNOFF DATA

 23 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .03  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                 DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

 24 LS          SCS LOSS RATE
                      STRTL        1.50  INITIAL ABSTRACTION
                     CRVNBR       83.00  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 25 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG         .92  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
                                              25 END-OF-PERIOD ORDINATES
                1.      4.      9.     13.     14.     13.     11.      8.      6.      4.
                3.      2.      2.      1.      1.      1.      0.      0.      0.      0.
                0.      0.      0.      0.      0.

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

                      HYDROGRAPH AT STATION   SECT10

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.54, TOTAL EXCESS =    1.08

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR       24-HR       72-HR     59.80-HR
     9.      13.20       (CFS)       3.          1.          0.          0.
                       (INCHES)     .903       1.078       1.078       1.078
                        (AC-FT)      1.          2.          2.          2.

                      CUMULATIVE AREA =     .03 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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          *            *
 26 KK    *   SECT10   *        OUTLET 2
          *            *
          **************
                            TEMPE
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 10 - OUTLET 2

             SUBBASIN RUNOFF DATA

 29 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .19  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                 DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

 30 LS          SCS LOSS RATE
                      STRTL         2.25  INITIAL ABSTRACTION
                     CRVNBR        88.00  CURVE NUMBER
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

 31 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG          .53  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
                                              15 END-OF-PERIOD ORDINATES
             31.      105.      145.      129.       84.       48.       29.       17.       10.        6.
              4.        2.        1.        1.        0.

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

                      HYDROGRAPH AT STATION   SECT10

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.93, TOTAL EXCESS =     .69

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                  6-HR       24-HR       72-HR     59.80-HR
    35.       13.00        (CFS)      11.         4.          1.          1.
                          (INCHES)   .530        .686        .686        .686
                          (AC-FT)      5.         7.          7.          7.

                       CUMULATIVE AREA =     .19 SQ MI

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          *            *
 32 KK    *      RT1   *
          *            *
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ROUTE SECTION 10 OUTLET 2 HYDROGRAPH TO KYRENE/ELLIOT INTERSECTION

HYDROGRAPH ROUTING DATA

34 RK KINEMATIC WAVE STREAM ROUTING

L	2100.	CHANNEL LENGTH
S	.0010	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.64	1.33	1.69	233.33	34.74	794.27	.69	2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= 6.956 EXCESS= .000 OUTFLOW= 6.945 BASIN STORAGE= .000 PERCENT ERROR= .153

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.64	1.33	12.00		34.39	792.00	.69

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

HYDROGRAPH AT STATION RT1

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
34.	13.20	(CFS)	11.	4.	1.	1.
		(INCHES)	.528	.688	.688	.688
		(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = .19 SQ MI

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          *            *
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35 KK     *     COMB1  *
          *            *
          **************
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COMBINE SECT9 * SECRT10-3 * RT1 TO GIVE HYDROGRAPH AT KYRENE/ELLIOT

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37 HC          HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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HYDROGRAPH AT STATION COMB1

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
112.	13.00	(CFS)	35.	11.	4.	4.
		(INCHES)	.595	.750	.750	.750
		(AC-FT)	17.	22.	22.	22.

CUMULATIVE AREA = .55 SQ MI

*** ***

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          **************
          *            *
38 KK     *      RT2   *
          *            *
          **************
```

ROUTE COMB1 HYDROGRAPH TO KYRENE/WARNER INTERSECTION

HYDROGRAPH ROUTING DATA

```
40 RK          KINEMATIC WAVE STREAM ROUTING
                        L       5280.  CHANNEL LENGTH
                        S       .0004  SLOPE
                        N        .016  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .00  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD         .00  BOTTOM WIDTH OR DIAMETER
                        Z       25.00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                    ***
```

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.40	1.33	1.75	229.57	111.93	818.94	.75	2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= 22.013 EXCESS= .000 OUTFLOW= 21.985 BASIN STORAGE= .000 PERCENT ERROR= .128

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.40	1.33	12.00	110.41	816.00	.76

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

HYDROGRAPH AT STATION RT2

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
110.	13.60	(CFS)	35.	11.	4.	4.
		(INCHES)	.587	.755	.755	.755
		(AC-FT)	17.	22.	22.	22.

CUMULATIVE AREA = .55 SQ MI

*** ***

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          **************
          *            *
41 KK     *   SECT16   *        OUTLET 1
          *            *
          **************
```

TEMPE

COMPUTE RUNOFF HYDROGRAPH FIR SECTION 16 - OUTLET 1

SUBBASIN RUNOFF DATA

44 BA SUBBASIN CHARACTERISTICS

TAREA .14 SUBBASIN AREA

PRECIPITATION DATA

16 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 18.38

45 LS SCS LOSS RATE

STRTL 1.54 INITIAL ABSTRACTION

CRVNBR 83.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

46 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .41 LAG

***

UNIT HYDROGRAPH

12 END-OF-PERIOD ORDINATES

40.	122.	126.	80.	40.	21.	11.	6.	3.	2.
1.	0.								

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

                    HYDROGRAPH AT STATION   SECT16

  TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.57, TOTAL EXCESS =    1.05

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
    61.      12.60       (CFS)      13.          4.          2.          2.
                       (INCHES)    .889       1.048       1.048       1.048
                        (AC-FT)      7.          8.          8.          8.

                       CUMULATIVE AREA =     .14 SQ MI


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


          **************
          *            *
 47 KK    *   SECT15   *        OUTLET 2
          *            *
          **************
                            TEMPE
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 15 - OUTLET 2

             SUBBASIN RUNOFF DATA

 50 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .31  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                 DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

 51 LS          SCS LOSS RATE
                      STRTL         1.45  INITIAL ABSTRACTION
                     CRVNBR        83.00  CURVE NUMBER
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

 52 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG          .98  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            27 END-OF-PERIOD ORDINATES
             12.      38.      80.     120.     138.     136.     120.      97.      68.      50.
             37.      28.      20.      15.      11.       8.       6.       5.       3.       2.
              2.       1.       1.       1.       1.       0.       0.

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

HYDROGRAPH AT STATION SECT15

TOTAL RAINFALL = 3.62, TOTAL LOSS = 2.50, TOTAL EXCESS = 1.12

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
89.	13.40	(CFS)	31.	9.	4.	4.
		(INCHES)	.938	1.116	1.116	1.116
		(AC-FT)	16.	18.	18.	18.

CUMULATIVE AREA = .31 SQ MI

*** ***

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          **************
          *            *
 53 KK    *     COMB2  *
          *            *
          **************
```

COMBINE RT2 * SECT16-1 * SECT15-2 TO GIVE HYDROGRAPH AT KYRENE/WARNER

55 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION COMB2

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
210.	13.60	(CFS)	78.	24.	10.	10.
		(INCHES)	.722	.908	.908	.908
		(AC-FT)	39.	48.	48.	48.

CUMULATIVE AREA = 1.00 SQ MI

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          **************
          *            *
 56 KK    *       RT3  *
          *            *
          **************
```

ROUTE COMB2 HYDROGRAPH TO KYRENE/RAY INTERSECTION

HYDROGRAPH ROUTING DATA

58 RK KINEMATIC WAVE STREAM ROUTING

L 5280. CHANNEL LENGTH

```
          S       .0020  SLOPE
          N        .016  CHANNEL ROUGHNESS COEFFICIENT
         CA         .00  CONTRIBUTING AREA
      SHAPE        TRAP  CHANNEL SHAPE
         WD         .00  BOTTOM WIDTH OR DIAMETER
          Z       25.00  SIDE SLOPE
      DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                        ***
                    COMPUTED KINEMATIC PARAMETERS
                         VARIABLE TIME STEP
                       (DT SHOWN IS A MINIMUM)
ELEMENT   ALPHA     M       DT       DX      PEAK   TIME TO   VOLUME   MAXIMUM
                                                     PEAK             CELERITY
                            (MIN)    (FT)    (CFS)   (MIN)    (IN)     (FPS)

   3       .90    1.33      1.88   528.00   208.76  831.65     .91      4.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=   48.425  EXCESS=     .000 OUTFLOW=   48.373 BASIN STORAGE=     .000 PERCENT ERROR=     .109

                         INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

   3       .90    1.33     12.00            206.62  828.00     .91

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

                HYDROGRAPH AT STATION     RT3

PEAK FLOW   TIME                      MAXIMUM AVERAGE FLOW
 (CFS)      (HR)              6-HR     24-HR     72-HR    59.80-HR
  207.     13.80     (CFS)     77.       24.       10.       10.
                   (INCHES)   .715      .907      .907      .907
                   (AC-FT)    38.       48.       48.       48.

                  CUMULATIVE AREA =    1.00 SQ MI


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


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        *            *
 59 KK  *   SECT21   *      OUTLET 1
        *            *
        **************
                         TEMPE
                         COMPUTE RUNOFF HYDROGRAPH FOR SECTION 21 - OUTLET 1

          SUBBASIN RUNOFF DATA

 62 BA       SUBBASIN CHARACTERISTICS
                TAREA          .42  SUBBASIN AREA

             PRECIPITATION DATA
```

```
16 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

63 LS         SCS LOSS RATE
                   STRTL        1.41  INITIAL ABSTRACTION
                  CRVNBR       83.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

64 UD         SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .61  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            17 END-OF-PERIOD ORDINATES
             50.     169.     274.     278.     221.     134.      84.      55.      34.      21.
             14.       9.       5.       3.       2.       1.       1.

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

                     HYDROGRAPH AT STATION   SECT21

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.47, TOTAL EXCESS =    1.15

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR       24-HR       72-HR     59.80-HR
   170.      12.80       (CFS)       44.         13.          5.          5.
                       (INCHES)     .978       1.147       1.147       1.147
                        (AC-FT)      22.         26.         26.         26.

                      CUMULATIVE AREA =     .42 SQ MI


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


          **************
          *            *
65 KK     *   SECT22   *        OUTLET 1
          *            *
          **************
                              TEMPE
                              COMPUTE RUNOFF HYDROGRAPH FOR SECTION 22 - OUTLET 1

             SUBBASIN RUNOFF DATA

68 BA         SUBBASIN CHARACTERISTICS
                   TAREA         .82  SUBBASIN AREA

              PRECIPITATION DATA

16 PH                                DEPTHS FOR   1-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
```

```
.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70    .00    .00    .00    .00

                                STORM AREA =   18.38

69 LS        SCS LOSS RATE
                 STRTL       2.26  INITIAL ABSTRACTION
                CRVNBR      83.00  CURVE NUMBER
                 RTIMP        .00  PERCENT IMPERVIOUS AREA

70 UD        SCS DIMENSIONLESS UNITGRAPH
                 TLAG        .38  LAG

                                        ***

                                UNIT HYDROGRAPH
                            11 END-OF-PERIOD ORDINATES
     280.    791.    745.    411.    208.    106.    53.    27.    14.    7.
       3.

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

                HYDROGRAPH AT STATION   SECT22

 TOTAL RAINFALL =   3.62, TOTAL LOSS =   3.08, TOTAL EXCESS =    .54

PEAK FLOW    TIME                    MAXIMUM AVERAGE FLOW
 (CFS)       (HR)              6-HR      24-HR      72-HR    59.80-HR
  133.      12.80     (CFS)     37.        12.        5.         5.
                    (INCHES)   .415       .543       .543       .543
                     (AC-FT)    18.        24.        24.        24.

                 CUMULATIVE AREA =    .82 SQ MI


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


          **************
          *            *
71 KK     *     COMB3  *
          *            *
          **************
                    COMBINE RT3 * SECT21-1 * SECT22-1 TO GIVE HYDROGRAPH AT KYRENE/RAY

73 HC        HYDROGRAPH COMBINATION
                ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                        ***

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

                HYDROGRAPH AT STATION    COMB3

PEAK FLOW    TIME                    MAXIMUM AVERAGE FLOW
 (CFS)       (HR)              6-HR      24-HR      72-HR    59.80-HR
  392.      13.00     (CFS)    156.        49.       20.        20.
                    (INCHES)   .649       .819       .819       .819
                     (AC-FT)    78.        98.        98.        98.
```

CUMULATIVE AREA = 2.24 SQ MI

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          **************
          *            *
 74 KK    *       RT4  *
          *            *
          **************
```

ROUTE COMB3 HYDROGRAPH TO KYRENE/CHANDLER INTERSECTION

HYDROGRAPH ROUTING DATA

76 RK KINEMATIC WAVE STREAM ROUTING

L	5280.	CHANNEL LENGTH
S	.0019	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.88	1.33	1.82	586.67	390.36	794.95	.82	5.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= 97.801 EXCESS= .000 OUTFLOW= 97.665 BASIN STORAGE= .000 PERCENT ERROR= .138

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.88	1.33	12.00		381.54	792.00	.82

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

HYDROGRAPH AT STATION RT4

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
382.	13.20	(CFS)	155.	49.	20.	20.
		(INCHES)	.645	.818	.818	.818
		(AC-FT)	77.	98.	98.	98.

CUMULATIVE AREA = 2.24 SQ MI

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

          **************
          *            *
 77 KK    *   SECT12   *
          *            *
          **************
                          TEMPE
                          COMPUTE RUNOFF HYDROGRAPH FOR SECTION 12

             SUBBASIN RUNOFF DATA

 80 BA          SUBBASIN CHARACTERISTICS
                     TAREA          .50  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                  .71    1.39   2.44   2.66   2.81   3.11   3.33   3.70    .00    .00    .00    .00

                                                STORM AREA =   18.38

 81 LS          SCS LOSS RATE
                     STRTL        3.00  INITIAL ABSTRACTION
                    CRVNBR       83.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 82 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         .58  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                            16 END-OF-PERIOD ORDINATES
             66.     226.     348.     335.     252.     147.      92.      57.      35.      22.
             14.       8.       5.       3.       2.       1.

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

                     HYDROGRAPH AT STATION   SECT12

   TOTAL RAINFALL =   3.62, TOTAL LOSS =   3.48, TOTAL EXCESS =    .14

 PEAK FLOW    TIME                        MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR      24-HR      72-HR    59.80-HR
     6.      15.00       (CFS)      4.         2.         1.         1.
                        (INCHES)   .084       .144       .144       .144
                        (AC-FT)     2.         4.         4.         4.

                      CUMULATIVE AREA =     .50 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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          **************
          *            *
 83 KK    *     RT5    *
          *            *
          **************
```

ROUTE SECT12 HYDROGRAPH TO SECT11 CONFLUENCE

HYDROGRAPH ROUTING DATA

85 RK KINEMATIC WAVE STREAM ROUTING

L	2600.	CHANNEL LENGTH
S	.0006	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.49	1.33	5.00	371.43	6.26	939.04	.14	1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= 3.839 EXCESS= .000 OUTFLOW= 3.836 BASIN STORAGE= .000 PERCENT ERROR= .088

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.49	1.33	12.00		6.26	936.00	.14

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

HYDROGRAPH AT STATION RT5

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
6.	15.60	(CFS)	4.	2.	1.	1.
		(INCHES)	.083	.144	.144	.144
		(AC-FT)	2.	4.	4.	4.

CUMULATIVE AREA = .50 SQ MI

*** ***

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

```
86 KK     *    SECT11  *
          *            *
          **************
```

TEMPE
COMPUTE RUNOFF HYDROGRAPH FOR SECTION 11

SUBBASIN RUNOFF DATA

```
89 BA        SUBBASIN CHARACTERISTICS
                 TAREA          .51  SUBBASIN AREA

             PRECIPITATION DATA

16 PH                                 DEPTHS FOR   1-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
               .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

90 LS        SCS LOSS RATE
                 STRTL         2.41  INITIAL ABSTRACTION
                CRVNBR        86.00  CURVE NUMBER
                 RTIMP          .00  PERCENT IMPERVIOUS AREA

91 UD        SCS DIMENSIONLESS UNITGRAPH
                 TLAG          .71  LAG
```

***

UNIT HYDROGRAPH
20 END-OF-PERIOD ORDINATES

43.	140.	264.	304.	276.	213.	134.	89.	61.	41.
27.	18.	12.	8.	5.	4.	3.	2.	1.	0.

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

HYDROGRAPH AT STATION SECT11

TOTAL RAINFALL = 3.62, TOTAL LOSS = 3.10, TOTAL EXCESS = .52

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
50.	13.40	(CFS)	21.	7.	3.	3.
		(INCHES)	.377	.516	.516	.516
		(AC-FT)	10.	14.	14.	14.

CUMULATIVE AREA = .51 SQ MI

*** ***

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          **************
          *            *
92 KK     *    COMB4   *
          *            *
          **************
```

COMBINE SECT12 * SECT11 HYDROGRAPHS

94 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION COMB4

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
50.	13.40	(CFS)	24.	9.	4.	4.
		(INCHES)	.221	.332	.332	.332
		(AC-FT)	12.	18.	18.	18.

CUMULATIVE AREA = 1.01 SQ MI

*** ***

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**************
*            *
*       RT6  *
*            *
**************
```

95 KK

ROUTE COMB4 HYDROGRAPH TO RURAL/ELLIOT INTERSECTION

HYDROGRAPH ROUTING DATA

97 RK KINEMATIC WAVE STREAM ROUTING

L	2600.	CHANNEL LENGTH
S	.0006	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.49	1.33	2.98	371.43	49.53	819.72	.33	2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= 17.864 EXCESS= .000 OUTFLOW= 17.853 BASIN STORAGE= .000 PERCENT ERROR= .064

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    3        .49      1.33      12.00              49.40    816.00       .33

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

                     HYDROGRAPH AT STATION      RT6

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
     49.      13.60       (CFS)      24.          9.          4.          4.
                        (INCHES)    .220        .331        .331        .331
                         (AC-FT)     12.         18.         18.         18.

                      CUMULATIVE AREA =    1.01 SQ MI


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


          **************
          *            *
 98 KK    *    SECT10  *        OUTLT 1
          *            *
          **************
                              TEMPE
                              COMPUTE RUNOFF D\HYDROGRAPH FOR SECTION 10 - OUTLET 1

             SUBBASIN RUNOFF DATA

101 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .50  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

102 LS          SCS LOSS RATE
                      STRTL         2.41  INITIAL ABSTRACTION
                     CRVNBR        84.00  CURVE NUMBER
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

103 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG          .36  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                           11 END-OF-PERIOD ORDINATES
             194.      514.      453.      229.      115.       56.       27.       14.        7.        4.
               1.

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                    HYDROGRAPH AT STATION   SECT10

  TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.15, TOTAL EXCESS =     .47

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    62.      12.80       (CFS)      19.         6.          3.          3.
                       (INCHES)    .348        .470        .470        .470
                        (AC-FT)     9.         13.         13.         13.

                    CUMULATIVE AREA =     .50 SQ MI


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          *            *
104 KK    *     COMB5  *
          *            *
          **************
                         COMBINE SECT10-1 * RT6 HYDROGRAPHS

106 HC         HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                   ***

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                    HYDROGRAPH AT STATION    COMB5

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    82.      13.40       (CFS)      42.        15.          6.          6.
                       (INCHES)    .256        .377        .377        .377
                        (AC-FT)    21.         30.         30.         30.

                    CUMULATIVE AREA =    1.51 SQ MI


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          *            *
107 KK    *       RT7  *
          *            *
          **************
                         ROUTE COMB5 HYDROGRAPH TO RURAL/WARNER INTERSECTION

            HYDROGRAPH ROUTING DATA

109 RK         KINEMATIC WAVE STREAM ROUTING
                         L       5280.  CHANNEL LENGTH
                         S       .0006  SLOPE
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```
                N        .016  CHANNEL ROUGHNESS COEFFICIENT
               CA         .00  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD         .00  BOTTOM WIDTH OR DIAMETER
                Z       25.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                  CELERITY
                                          (MIN)     (FT)    (CFS)    (MIN)       (IN)      (FPS)

             3         .49     1.33      2.49    352.00    81.35   840.85       .38       2.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=   30.369  EXCESS=     .000 OUTFLOW=   30.312 BASIN STORAGE=     .000 PERCENT ERROR=     .188

                                 INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             3         .49     1.33     12.00              81.32   840.00       .38

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

                 HYDROGRAPH AT STATION      RT7

 PEAK FLOW    TIME                        MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR      24-HR      72-HR     59.80-HR
    81.      14.00       (CFS)     41.        15.        6.          6.
                       (INCHES)   .251       .377       .377        .377
                        (AC-FT)    20.        30.        30.         30.

                     CUMULATIVE AREA =    1.51 SQ MI


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          *            *
 110 KK   *   SECT13   *
          *            *
          **************
                         TEMPE
                         COMPUTE RUNOFF HYDROGRAPH FOR SECTION 13

            SUBBASIN RUNOFF DATA

 113 BA        SUBBASIN CHARACTERISTICS
                    TAREA        1.00  SUBBASIN AREA

               PRECIPITATION DATA

  16 PH                          DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
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                ..... 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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

114 LS          SCS LOSS RATE
                      STRTL        2.72  INITIAL ABSTRACTION
                     CRVNBR       88.00  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

115 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG         .32  LAG

                                                      ***

                                                UNIT HYDROGRAPH
                                          10 END-OF-PERIOD ORDINATES
             500.     1152.     870.     379.     177.      82.      38.      17.       9.       3.

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

                      HYDROGRAPH AT STATION   SECT13

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.26, TOTAL EXCESS =     .36

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    54.     13.00        (CFS)      26.         10.          4.          4.
                       (INCHES)     .241        .358        .358        .358
                        (AC-FT)      13.         19.         19.         19.

                       CUMULATIVE AREA =    1.00 SQ MI


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


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          *            *
116 KK    *       RT8  *
          *            *
          **************
                          ROUTE SECT13 HYDROGRAPH TO RURAL/WARNER INTERSECTION

             HYDROGRAPH ROUTING DATA

118 RK          KINEMATIC WAVE STREAM ROUTING
                         L       5280.  CHANNEL LENGTH
                         S       .0009  SLOPE
                         N        .016  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .00  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD         .00  BOTTOM WIDTH OR DIAMETER
                         Z       25.00  SIDE SLOPE
                     DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                      ***
```

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.60	1.33	2.97	440.00	53.87	813.41	.36	2.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= 19.076 EXCESS= .000 OUTFLOW= 19.046 BASIN STORAGE= .000 PERCENT ERROR= .158

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.60	1.33	12.00	53.15	816.00	.36

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HYDROGRAPH AT STATION RT8

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
53.	13.60	(CFS)	25.	10.	4.	4.
		(INCHES)	.235	.358	.358	.358
		(AC-FT)	13.	19.	19.	19.

CUMULATIVE AREA = 1.00 SQ MI

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          *            *
119 KK    *   SECT14   *
          *            *
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TEMPE
COMPUTE RUNOFF HYDROGRAPH FOR SECTION 14

SUBBASIN RUNOFF DATA

122 BA SUBBASIN CHARACTERISTICS
TAREA 1.00 SUBBASIN AREA

PRECIPITATION DATA

16 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 18.38

123 LS SCS LOSS RATE
STRTL 2.83 INITIAL ABSTRACTION

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                CRVNBR       75.70  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

124 UD        SCS DIMENSIONLESS UNITGRAPH
                 TLAG         .75  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          21 END-OF-PERIOD ORDINATES
          75.     240.     470.     565.     537.     437.     292.     194.     135.      92.
          62.      42.      29.      20.      14.       9.       6.       5.       3.       2.
           0.

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

                  HYDROGRAPH AT STATION   SECT14

  TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.46, TOTAL EXCESS =     .16

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    15.      14.60       (CFS)      10.          4.          2.          2.
                       (INCHES)    .093        .156        .156        .156
                        (AC-FT)      5.          8.          8.          8.

                      CUMULATIVE AREA =    1.00 SQ MI


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


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          *            *
125 KK    *   SECT15   *        OUTLET 1
          *            *
          **************
                            TEMPE
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 15 - OUTLET 1

             SUBBASIN RUNOFF DATA

128 BA        SUBBASIN CHARACTERISTICS
                 TAREA         .69  SUBBASIN AREA

              PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

129 LS        SCS LOSS RATE
                 STRTL        2.18  INITIAL ABSTRACTION
                CRVNBR       81.00  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA
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130 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG          .82  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                           23 END-OF-PERIOD ORDINATES
              42.      132.      269.      352.      359.      310.      237.      157.      109.       78.
              54.       38.       27.       19.       13.        9.        7.        5.        3.        2.
               2.        1.        0.

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

                      HYDROGRAPH AT STATION   SECT15

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.07, TOTAL EXCESS =     .55

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
     78.      13.40       (CFS)      31.         10.          4.          4.
                        (INCHES)    .415        .548        .548        .548
                         (AC-FT)     15.         20.         20.         20.

                      CUMULATIVE AREA =     .69 SQ MI


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


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          *            *
131 KK    *     COMB6  *
          *            *
          **************
                          COMBINE RT7 * RT8 * SECT14 * SECT15-1 TO GIVE HYDROGRAPH AT
                          RURAL/CHAMDLER INTERSECTION

134 HC          HYDROGRAPH COMBINATION
                     ICOMP           4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                      HYDROGRAPH AT STATION    COMB6

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    201.      13.80       (CFS)     104.         39.         16.         16.
                        (INCHES)    .229        .348        .348        .348
                         (AC-FT)     51.         78.         78.         78.

                      CUMULATIVE AREA =    4.20 SQ MI
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135 KK    *       RT9  *
          *            *
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ROUTE COMB6 HYDROGRAPH TO RURAL/CHANDLER INTERSECTION

HYDROGRAPH ROUTING DATA

137 RK KINEMATIC WAVE STREAM ROUTING

L	5280.	CHANNEL LENGTH
S	.0006	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.49	1.33	1.99	352.00	200.83	854.77	.35	2.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= 77.933 EXCESS= .000 OUTFLOW= 77.860 BASIN STORAGE= .001 PERCENT ERROR= .093

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.49	1.33	12.00	200.42	852.00	.35

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

HYDROGRAPH AT STATION RT9

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
200.	14.20	(CFS)	103.	39.	16.	16.
		(INCHES)	.228	.347	.347	.347
		(AC-FT)	51.	78.	78.	78.

CUMULATIVE AREA = 4.20 SQ MI

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138 KK    *    SECT24 *
          *           *
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TEMPE
COMPUTE RUNOFF HYDROGRAPH FOR SECTION 24

SUBBASIN RUNOFF DATA

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141 BA        SUBBASIN CHARACTERISTICS
                   TAREA        1.00  SUBBASIN AREA

              PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

142 LS        SCS LOSS RATE
                   STRTL        2.77  INITIAL ABSTRACTION
                  CRVNBR       83.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

143 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .60  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            17 END-OF-PERIOD ORDINATES
            122.     418.     666.     666.     519.     311.     193.     125.      78.      49.
             31.      19.      12.       8.       5.       3.       1.

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

                     HYDROGRAPH AT STATION   SECT24

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.37, TOTAL EXCESS =     .25

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    27.      13.80        (CFS)     17.         7.          3.          3.
                         (INCHES)   .158        .249        .249        .249
                         (AC-FT)     8.         13.         13.         13.

                       CUMULATIVE AREA =    1.00 SQ MI
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          *           *
144 KK    *      RT10 *
          *           *
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                    ROUTE SECT24 HYDROGRAPH TO SECT23 CONFLUENCE

          HYDROGRAPH ROUTING DATA

146 RK        KINEMATIC WAVE STREAM ROUTING
                        L      5280.  CHANNEL LENGTH
                        S      .0011  SLOPE
                        N       .016  CHANNEL ROUGHNESS COEFFICIENT
                       CA        .00  CONTRIBUTING AREA
                    SHAPE       TRAP  CHANNEL SHAPE
                       WD        .00  BOTTOM WIDTH OR DIAMETER
                        Z      25.00  SIDE SLOPE
                    DXMIN          2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
                ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO    VOLUME    MAXIMUM
                                                                          PEAK               CELERITY
                                                (MIN)     (FT)    (CFS)    (MIN)      (IN)      (FPS)

                   3        .67     1.33      3.27    440.00    26.96   864.60       .25      2.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=   13.289  EXCESS=     .000 OUTFLOW=   13.276 BASIN STORAGE=     .000 PERCENT ERROR=     .101

                               INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   3        .67     1.33     12.00              26.95   864.00       .25

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

                    HYDROGRAPH AT STATION     RT10

 PEAK FLOW    TIME                        MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR      24-HR      72-HR    59.80-HR
    27.      14.40       (CFS)     17.        7.         3.         3.
                       (INCHES)   .156       .249       .249       .249
                        (AC-FT)     8.        13.        13.        13.

                     CUMULATIVE AREA =    1.00 SQ MI


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          *            *
147 KK    *    SECT23  *
          *            *
          **************
                    TEMPE
                    COMPUTE RUNOFF HYDROGRAPH FOR SECTION 23
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SUBBASIN RUNOFF DATA

150 BA SUBBASIN CHARACTERISTICS

TAREA 1.00 SUBBASIN AREA

PRECIPITATION DATA

16 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 18.38

151 LS SCS LOSS RATE

STRTL 2.97 INITIAL ABSTRACTION

CRVNBR 83.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

152 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .78 LAG

***

UNIT HYDROGRAPH

21 END-OF-PERIOD ORDINATES

68.	218.	434.	544.	531.	444.	313.	208.	144.	102.
70.	48.	33.	23.	16.	11.	8.	5.	4.	2.
1.									

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

HYDROGRAPH AT STATION SECT23

TOTAL RAINFALL = 3.62, TOTAL LOSS = 3.46, TOTAL EXCESS = .16

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
14.	15.20	(CFS)	10.	4.	2.	2.
		(INCHES)	.091	.156	.156	.156
		(AC-FT)	5.	8.	8.	8.

CUMULATIVE AREA = 1.00 SQ MI

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*   SECT22   *
*            *
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153 KK OUTLET 2

TEMPE

COMPUTE RUNOFF HYDROGRAPH FOR SECTION 22 - OUTLET 2

SUBBASIN RUNOFF DATA

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156 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .13  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                     STORM AREA =   18.38

157 LS          SCS LOSS RATE
                      STRTL         1.45  INITIAL ABSTRACTION
                     CRVNBR        83.00  CURVE NUMBER
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

158 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG          .33  LAG

                                                          ***

                                                     UNIT HYDROGRAPH
                                                 10 END-OF-PERIOD ORDINATES
             61.      146.      115.       52.       25.       12.        5.        3.        1.        1.

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

                       HYDROGRAPH AT STATION   SECT22

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.50, TOTAL EXCESS =    1.12

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    71.      12.60        (CFS)      13.          4.          2.          2.
                         (INCHES)   .958       1.116       1.116       1.116
                          (AC-FT)     7.          8.          8.          8.

                       CUMULATIVE AREA =     .13 SQ MI


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          *            *
159 KK    *     COMB7  *
          *            *
          **************
                                COMBINE RT9 * RT10 * SECT22-2 * SECT23 TO GIVE HYDROGRAPH AT
                                RURAL/RAY INTERSECTION

162 HC          HYDROGRAPH COMBINATION
                      ICOMP           4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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HYDROGRAPH AT STATION COMB7

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
245.	14.20	(CFS)	134.	54.	22.	22.
		(INCHES)	.196	.317	.317	.317
		(AC-FT)	66.	107.	107.	107.

CUMULATIVE AREA = 6.33 SQ MI

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          *            *
163 KK    *     RT11   *
          *            *
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ROUTE COMB7 HYDROGRAPH TO RURAL/CHANDLER INTERSECTION

HYDROGRAPH ROUTING DATA

165 RK KINEMATIC WAVE STREAM ROUTING

L	5280.	CHANNEL LENGTH
S	.0009	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.60	1.33	2.03	440.00	244.86	874.76	.32	3.61

CONTINUITY SUMMARY (AC-FT) - INFLOW= 107.126 EXCESS= .000 OUTFLOW= 106.901 BASIN STORAGE= .001 PERCENT ERROR= .209

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.60	1.33	12.00		244.73	876.00	.32

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

HYDROGRAPH AT STATION RT11

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

(CFS)	(HR)		6-HR	24-HR	72-HR	59.80-HR
245.	14.60	(CFS)	133.	54.	22.	22.
		(INCHES)	.195	.317	.317	.317
		(AC-FT)	66.	107.	107.	107.

CUMULATIVE AREA = 6.33 SQ MI

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          *            *
166 KK    *    SECT26  *
          *            *
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CHANDLER
COMPUTE RUNOFF HYDROGRAPH FOR SECTION 26

SUBBASIN RUNOFF DATA

169 BA SUBBASIN CHARACTERISTICS

TAREA 1.00 SUBBASIN AREA

PRECIPITATION DATA

16 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 18.38

170 LS SCS LOSS RATE

STRTL 1.82 INITIAL ABSTRACTION
CRVNBR 85.00 CURVE NUMBER
RTIMP .00 PERCENT IMPERVIOUS AREA

171 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 1.96 LAG *

*TLAG INPUT INCORRECTLY, SHOULD BE 0.96 — resulted in too low of Q, runoff volume okay.

***

UNIT HYDROGRAPH
51 END-OF-PERIOD ORDINATES

7.	23.	43.	69.	105.	147.	185.	212.	229.	234.
233.	223.	208.	191.	170.	145.	120.	100.	85.	73.
62.	54.	46.	39.	33.	29.	24.	21.	18.	15.
13.	11.	9.	8.	7.	6.	5.	4.	4.	3.
3.	2.	2.	2.	2.	1.	1.	1.	1.	0.
0.									

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

HYDROGRAPH AT STATION SECT26

TOTAL RAINFALL = 3.62, TOTAL LOSS = 2.71, TOTAL EXCESS = .91

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
~~128.~~ 221	14.60	(CFS)	74.	24.	10.	10.
		(INCHES)	.691	.909	.909	.909
		(AC-FT)	37.	48.	48.	48.

CUMULATIVE AREA = 1.00 SQ MI

*** ***

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          **************
          *            *
172 KK    *     COMB8  *
          *            *
          **************
```

COMBINE RT11 * SECT26

```
174 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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*** *** *** *** ***

HYDROGRAPH AT STATION COMB8

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
373.	14.60	(CFS)	203.	78.	31.	31.
		(INCHES)	.258	.398	.398	.398
		(AC-FT)	101.	155.	155.	155.

CUMULATIVE AREA = 7.33 SQ MI

*** ***

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          **************
          *            *
175 KK    *      RT12  *
          *            *
          **************
```

ROUTE COMB8 HYDROGRAPH TO KYRENE/CHNADLER INTERSECTION

HYDROGRAPH ROUTING DATA

```
177 RK          KINEMATIC WAVE STREAM ROUTING
                          L       5280.  CHANNEL LENGTH
                          S       .0009  SLOPE
                          N        .016  CHANNEL ROUGHNESS COEFFICIENT
                         CA         .00  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD         .00  BOTTOM WIDTH OR DIAMETER
```

```
                Z        25.00  SIDE SLOPE
            DXMIN            2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
        ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                  CELERITY
                                          (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

          3         .60      1.33       1.83    440.00    372.36    895.88       .40       4.01


CONTINUITY SUMMARY (AC-FT) - INFLOW=  155.491  EXCESS=     .000 OUTFLOW=  155.397 BASIN STORAGE=     .002 PERCENT ERROR=     .059


                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL


          3         .60      1.33      12.00              371.43    900.00       .40

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

                 HYDROGRAPH AT STATION     RT12

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     59.80-HR
   371.     15.00        (CFS)     203.        78.         31.         31.
                       (INCHES)    .257       .397        .397        .397
                        (AC-FT)    101.       155.        155.        155.

                 CUMULATIVE AREA =    7.33 SQ MI


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


          **************
          *            *
178 KK    *    SECT28  *        OUTLET 1
          *            *
          **************
                            CHANDLER
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 28 - OUT.ET 1

            SUBBASIN RUNOFF DATA

181 BA        SUBBASIN CHARACTERISTICS
                  TAREA          .69  SUBBASIN AREA

              PRECIPITATION DATA

 16 PH                            DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00
```

```
                                        STORM AREA =   18.38

182 LS          SCS LOSS RATE
                     STRTL        2.51  INITIAL ABSTRACTION
                    CRVNBR       85.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

183 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         .35  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          11 END-OF-PERIOD ORDINATES
            284.     733.     621.     302.     149.      72.      35.      17.       8.       4.
              1.

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

                      HYDROGRAPH AT STATION   SECT28

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.19, TOTAL EXCESS =     .43

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    66.      12.80        (CFS)     23.         8.          3.          3.
                        (INCHES)   .309        .428        .428        .428
                         (AC-FT)    11.        16.         16.         16.

                       CUMULATIVE AREA =     .69 SQ MI


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


          **************
          *            *
184 KK    *    SECT27  *
          *            *
          **************
                                CHANDLER
                                COMPUTE RUNOFF HYDROGRAPH FOR SECTION 27

            SUBBASIN RUNOFF DATA

187 BA          SUBBASIN CHARACTERISTICS
                     TAREA        1.00  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                        STORM AREA =   18.38

188 LS          SCS LOSS RATE
```

```
                STRTL        2.18  INITIAL ABSTRACTION
               CRVNBR       88.00  CURVE NUMBER
                RTIMP         .00  PERCENT IMPERVIOUS AREA

189 UD        SCS DIMENSIONLESS UNITGRAPH
                 TLAG        1.38  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          36 END-OF-PERIOD ORDINATES
          18.     53.    104.    179.    255.    306.    325.    324.    300.    267.
         226.    176.    137.    109.     88.     72.     58.     46.     37.     30.
          24.     19.     15.     12.     10.      8.      6.      5.      4.      3.
           3.      2.      2.      1.      1.      0.

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

                 HYDROGRAPH AT STATION   SECT27

  TOTAL RAINFALL =   3.62, TOTAL LOSS =   2.88, TOTAL EXCESS =    .74

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                  6-HR      24-HR      72-HR    59.80-HR
   117.     14.00       (CFS)      60.        20.        8.         8.
                      (INCHES)    .555       .739       .739       .739
                       (AC-FT)     30.        39.        39.        39.

                      CUMULATIVE AREA =   1.00 SQ MI


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


          **************
          *            *
190 KK    *     SOMB9  *
          *            *
          **************
                         COMBINE SECT27 * RT13 * RT12 * RT4 TO GIVE HYDROGRAPH AT
                         KYRENE/CHANDLER INTERSECTION

193 HC        HYDROGRAPH COMBINATION
                 ICOMP           4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                 HYDROGRAPH AT STATION    SOMB9

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                  6-HR      24-HR      72-HR    59.80-HR
   673.     14.80       (CFS)     426.       155.       62.        62.
                      (INCHES)    .352       .513       .513       .513
                       (AC-FT)    211.       308.       308.       308.

                      CUMULATIVE AREA =  11.26 SQ MI
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*** ***

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          **************
          *            *
194 KK    *      RT13  *
          *            *
          **************
```

ROUTE COMB9 HYDROGRAPH TO KYRENE/SOUTHWEST LOOP INTERSECTION

HYDROGRAPH ROUTING DATA

196 RK KINEMATIC WAVE STREAM ROUTING

L	4000.	CHANNEL LENGTH
S	.0006	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.49	1.33	1.67	400.00	672.65	902.93	.51	3.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= 308.252 EXCESS= .000 OUTFLOW= 308.038 BASIN STORAGE= .003 PERCENT ERROR= .068

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.49	1.33	12.00		658.28	912.00	.51

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

HYDROGRAPH AT STATION RT13

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
658.	15.20	(CFS)	424.	155.	62.	62.
		(INCHES)	.350	.512	.513	.513
		(AC-FT)	210.	308.	308.	308.

CUMULATIVE AREA = 11.26 SQ MI

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


          **************
          *            *
197 KK    *   SECT35   *
          *            *
          **************
                                CHANDLER
                                COMPUTE RUNOFF FOR SECTION 35

             SUBBASIN RUNOFF DATA

200 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.09  SUBBASIN AREA

                PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                  .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

201 LS          SCS LOSS RATE
                      STRTL        2.38  INITIAL ABSTRACTION
                     CRVNBR       83.00  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

202 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG         .23  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
                                               8 END-OF-PERIOD ORDINATES
             1073.     1477.      608.      228.       84.       32.       13.        2.

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

                       HYDROGRAPH AT STATION   SECT35

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.15, TOTAL EXCESS =     .47

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
   155.      12.80        (CFS)      41.         14.          5.          5.
                        (INCHES)    .350        .467        .467        .467
                        (AC-FT)      20.         27.         27.         27.

                       CUMULATIVE AREA =    1.09 SQ MI


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


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          *            *
203 KK    *      RT14  *
          *            *
          **************
```

ROUTE HYDROGRAPH TO KYRENE/SOUTHWEST LOOP INTERSECTION

HYDROGRAPH ROUTING DATA

205 RK KINEMATIC WAVE STREAM ROUTING

L	4300.	CHANNEL LENGTH
S	.0008	SLOPE
N	.016	CHANNEL ROUGHNESS COEFFICIENT
CA	.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	25.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
3	.57	1.33	2.59	477.78	154.18	786.78	.47	3.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= 27.175 EXCESS= .000 OUTFLOW= 27.105 BASIN STORAGE= .000 PERCENT ERROR= .258

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.57	1.33	12.00	152.42	780.00	.46

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

HYDROGRAPH AT STATION RT14

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
152.	13.00	(CFS)	40.	14.	5.	5.
		(INCHES)	.341	.464	.464	.464
		(AC-FT)	20.	27.	27.	27.

CUMULATIVE AREA = 1.09 SQ MI

*** ***

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          **************
          *            *
206 KK    *    SECT34  *
          *            *
          **************
```

CHANDLER
COMPUTE RUNOFF HYDROGRAPH FOR SECTION 34

SUBBASIN RUNOFF DATA

209 BA SUBBASIN CHARACTERISTICS

TAREA	.67	SUBBASIN AREA

PRECIPITATION DATA

16 PH DEPTHS FOR 1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 18.38

210 LS SCS LOSS RATE

STRTL	2.04	INITIAL ABSTRACTION
CRVNBR	83.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

211 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	1.05	LAG

***

UNIT HYDROGRAPH
28 END-OF-PERIOD ORDINATES

23.	70.	144.	229.	274.	280.	258.	222.	169.	122.
91.	70.	53.	39.	30.	22.	17.	13.	10.	7.
5.	4.	3.	3.	2.	1.	1.	0.		

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

HYDROGRAPH AT STATION SECT34

TOTAL RAINFALL = 3.62, TOTAL LOSS = 2.93, TOTAL EXCESS = .69

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
90.	13.60	(CFS)	38.	12.	5.	5.
		(INCHES)	.533	.688	.688	.688
		(AC-FT)	19.	25.	25.	25.

CUMULATIVE AREA = .67 SQ MI

*** ***

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              **************
              *            *
212 KK        *   SECT33   *        OUTLET 2
              *            *
              **************
```

COMPUTE RUNOFF HYDROGRAPH FOR SECTION 33 - OUTLET 2

```
            SUBBASIN RUNOFF DATA

214 BA        SUBBASIN CHARACTERISTICS
                    TAREA          .26  SUBBASIN AREA

              PRECIPITATION DATA

 16 PH                            DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

215 LS        SCS LOSS RATE
                    STRTL         1.53  INITIAL ABSTRACTION
                   CRVNBR        86.00  CURVE NUMBER
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

216 UD        SCS DIMENSIONLESS UNITGRAPH
                     TLAG          .54  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                          16 END-OF-PERIOD ORDINATES
            40.     138.     195.     176.     119.      68.      42.      25.      15.       9.
             5.       3.       2.       1.       1.       0.

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

                     HYDROGRAPH AT STATION   SECT33

  TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.45, TOTAL EXCESS =    1.17

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR       24-HR       72-HR     59.80-HR
   116.     12.80       (CFS)      28.          8.          3.          3.
                      (INCHES)    .999       1.175       1.175       1.175
                       (AC-FT)     14.         16.         16.         16.

                     CUMULATIVE AREA =     .26 SQ MI


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


          **************
          *            *
217 KK    *   SECT33   *       OUTLET 1
          *            *
          **************
                            CHANDLER
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 33 - OUTLET 1

            SUBBASIN RUNOFF DATA

220 BA        SUBBASIN CHARACTERISTICS
```

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                    TAREA          .53  SUBBASIN AREA

              PRECIPITATION DATA

 16 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

 221 LS       SCS LOSS RATE
                    STRTL         2.22  INITIAL ABSTRACTION
                   CRVNBR        82.00  CURVE NUMBER
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 222 UD       SCS DIMENSIONLESS UNITGRAPH
                     TLAG          .18  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
                                              6 END-OF-PERIOD ORDINATES
            746.      671.      203.      63.       20.       7.

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

                     HYDROGRAPH AT STATION   SECT33

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    3.07, TOTAL EXCESS =     .55

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    116.     12.60        (CFS)      24.         8.          3.          3.
                         (INCHES)   .422        .545        .545        .545
                         (AC-FT)    12.         15.         15.         15.

                         CUMULATIVE AREA =     .53 SQ MI


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


          **************
          *            *
 223 KK   *   OUTLTB   *
          *            *
          **************
                          COMBINE SECT33-1 * SECT33-2 * SECT34 * RT14 * RT15

 225 KO       OUTPUT CONTROL VARIABLES
                    IPRNT           1  PRINT CONTROL
                    IPLOT           2  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          60  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
```

TIMINT .200 TIME INTERVAL IN HOURS

226 HC HYDROGRAPH COMBINATION

ICOMP 5 NUMBER OF HYDROGRAPHS TO COMBINE

***

****

HYDROGRAPH AT STATION OUTLTB

SUM OF 5 HYDROGRAPHS

****

DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	*	1		1500	76	770.	*	2		0600	151	10.	*	2		2100	226	0.
1		0012	2	0.	*	1		1512	77	760.	*	2		0612	152	9.	*	2		2112	227	0.
1		0024	3	0.	*	1		1524	78	719.	*	2		0624	153	8.	*	2		2124	228	0.
1		0036	4	0.	*	1		1536	79	672.	*	2		0636	154	8.	*	2		2136	229	0.
1		0048	5	0.	*	1		1548	80	622.	*	2		0648	155	7.	*	2		2148	230	0.
1		0100	6	0.	*	1		1600	81	572.	*	2		0700	156	6.	*	2		2200	231	0.
1		0112	7	0.	*	1		1612	82	527.	*	2		0712	157	6.	*	2		2212	232	0.
1		0124	8	0.	*	1		1624	83	487.	*	2		0724	158	5.	*	2		2224	233	0.
1		0136	9	0.	*	1		1636	84	452.	*	2		0736	159	5.	*	2		2236	234	0.
1		0148	10	0.	*	1		1648	85	422.	*	2		0748	160	4.	*	2		2248	235	0.
1		0200	11	0.	*	1		1700	86	394.	*	2		0800	161	4.	*	2		2300	236	0.
1		0212	12	0.	*	1		1712	87	369.	*	2		0812	162	3.	*	2		2312	237	0.
1		0224	13	0.	*	1		1724	88	345.	*	2		0824	163	3.	*	2		2324	238	0.
1		0236	14	0.	*	1		1736	89	322.	*	2		0836	164	3.	*	2		2336	239	0.
1		0248	15	0.	*	1		1748	90	301.	*	2		0848	165	3.	*	2		2348	240	0.
1		0300	16	0.	*	1		1800	91	281.	*	2		0900	166	2.	*	3		0000	241	0.
1		0312	17	0.	*	1		1812	92	266.	*	2		0912	167	2.	*	3		0012	242	0.
1		0324	18	0.	*	1		1824	93	252.	*	2		0924	168	2.	*	3		0024	243	0.
1		0336	19	0.	*	1		1836	94	241.	*	2		0936	169	2.	*	3		0036	244	0.
1		0348	20	0.	*	1		1848	95	233.	*	2		0948	170	2.	*	3		0048	245	0.
1		0400	21	0.	*	1		1900	96	227.	*	2		1000	171	2.	*	3		0100	246	0.
1		0412	22	0.	*	1		1912	97	221.	*	2		1012	172	1.	*	3		0112	247	0.
1		0424	23	0.	*	1		1924	98	216.	*	2		1024	173	1.	*	3		0124	248	0.
1		0436	24	0.	*	1		1936	99	211.	*	2		1036	174	1.	*	3		0136	249	0.
1		0448	25	0.	*	1		1948	100	206.	*	2		1048	175	1.	*	3		0148	250	0.
1		0500	26	0.	*	1		2000	101	202.	*	2		1100	176	1.	*	3		0200	251	0.
1		0512	27	0.	*	1		2012	102	198.	*	2		1112	177	1.	*	3		0212	252	0.
1		0524	28	0.	*	1		2024	103	195.	*	2		1124	178	1.	*	3		0224	253	0.
1		0536	29	0.	*	1		2036	104	193.	*	2		1136	179	1.	*	3		0236	254	0.
1		0548	30	0.	*	1		2048	105	191.	*	2		1148	180	1.	*	3		0248	255	0.
1		0600	31	0.	*	1		2100	106	191.	*	2		1200	181	1.	*	3		0300	256	0.
1		0612	32	0.	*	1		2112	107	191.	*	2		1212	182	1.	*	3		0312	257	0.
1		0624	33	0.	*	1		2124	108	190.	*	2		1224	183	1.	*	3		0324	258	0.
1		0636	34	0.	*	1		2136	109	189.	*	2		1236	184	1.	*	3		0336	259	0.
1		0648	35	0.	*	1		2148	110	187.	*	2		1248	185	1.	*	3		0348	260	0.
1		0700	36	0.	*	1		2200	111	185.	*	2		1300	186	1.	*	3		0400	261	0.
1		0712	37	0.	*	1		2212	112	183.	*	2		1312	187	1.	*	3		0412	262	0.
1		0724	38	0.	*	1		2224	113	181.	*	2		1324	188	0.	*	3		0424	263	0.
1		0736	39	0.	*	1		2236	114	178.	*	2		1336	189	0.	*	3		0436	264	0.
1		0748	40	0.	*	1		2248	115	176.	*	2		1348	190	0.	*	3		0448	265	0.
1		0800	41	0.	*	1		2300	116	173.	*	2		1400	191	0.	*	3		0500	266	0.
1		0812	42	0.	*	1		2312	117	171.	*	2		1412	192	0.	*	3		0512	267	0.
1		0824	43	0.	*	1		2324	118	168.	*	2		1424	193	0.	*	3		0524	268	0.

1	0836	44	0.	*	1	2336	119	166.	*	2	1436	194	0.	*	3	0536	269	0.
1	0848	45	0.	*	1	2348	120	163.	*	2	1448	195	0.	*	3	0548	270	0.
1	0900	46	0.	*	2	0000	121	161.	*	2	1500	196	0.	*	3	0600	271	0.
1	0912	47	0.	*	2	0012	122	156.	*	2	1512	197	0.	*	3	0612	272	0.
1	0924	48	0.	*	2	0024	123	151.	*	2	1524	198	0.	*	3	0624	273	0.
1	0936	49	0.	*	2	0036	124	146.	*	2	1536	199	0.	*	3	0636	274	0.
1	0948	50	0.	*	2	0048	125	138.	*	2	1548	200	0.	*	3	0648	275	0.
1	1000	51	0.	*	2	0100	126	129.	*	2	1600	201	0.	*	3	0700	276	0.
1	1012	52	0.	*	2	0112	127	120.	*	2	1612	202	0.	*	3	0712	277	0.
1	1024	53	0.	*	2	0124	128	112.	*	2	1624	203	0.	*	3	0724	278	0.
1	1036	54	0.	*	2	0136	129	104.	*	2	1636	204	0.	*	3	0736	279	0.
1	1048	55	0.	*	2	0148	130	97.	*	2	1648	205	0.	*	3	0748	280	0.
1	1100	56	0.	*	2	0200	131	91.	*	2	1700	206	0.	*	3	0800	281	0.
1	1112	57	0.	*	2	0212	132	85.	*	2	1712	207	0.	*	3	0812	282	0.
1	1124	58	0.	*	2	0224	133	79.	*	2	1724	208	0.	*	3	0824	283	0.
1	1136	59	0.	*	2	0236	134	73.	*	2	1736	209	0.	*	3	0836	284	0.
1	1148	60	0.	*	2	0248	135	67.	*	2	1748	210	0.	*	3	0848	285	0.
1	1200	61	0.	*	2	0300	136	62.	*	2	1800	211	0.	*	3	0900	286	0.
1	1212	62	33.	*	2	0312	137	56.	*	2	1812	212	0.	*	3	0912	287	0.
1	1224	63	137.	*	2	0324	138	50.	*	2	1824	213	0.	*	3	0924	288	0.
1	1236	64	233.	*	2	0336	139	44.	*	2	1836	214	0.	*	3	0936	289	0.
1	1248	65	249.	*	2	0348	140	39.	*	2	1848	215	0.	*	3	0948	290	0.
1	1300	66	381.	*	2	0400	141	34.	*	2	1900	216	0.	*	3	1000	291	0.
1	1312	67	675.	*	2	0412	142	30.	*	2	1912	217	0.	*	3	1012	292	0.
1	1324	68	761.	*	2	0424	143	26.	*	2	1924	218	0.	*	3	1024	293	0.
1	1336	69	749.	*	2	0436	144	23.	*	2	1936	219	0.	*	3	1036	294	0.
1	1348	70	757.	*	2	0448	145	21.	*	2	1948	220	0.	*	3	1048	295	0.
1	1400	71	754.	*	2	0500	146	18.	*	2	2000	221	0.	*	3	1100	296	0.
1	1412	72	747.	*	2	0512	147	16.	*	2	2012	222	0.	*	3	1112	297	0.
1	1424	73	726.	*	2	0524	148	15.	*	2	2024	223	0.	*	3	1124	298	0.
1	1436	74	693.	*	2	0536	149	13.	*	2	2036	224	0.	*	3	1136	299	0.
1	1448	75	719.	*	2	0548	150	12.	*	2	2048	225	0.	*	3	1148	300	0.
				*					*					*				

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
770.	15.00	(CFS)	533.	197.	79.	79.
		(INCHES)	.359	.531	.531	.531
		(AC-FT)	264.	391.	391.	391.

CUMULATIVE AREA = 13.81 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	SECT9	86.	12.80	22.	7.	3.	.33		
HYDROGRAPH AT	SECT10	9.	13.20	3.	1.	0.	.03		
HYDROGRAPH AT	SECT10	35.	13.00	11.	4.	1.	.19		
ROUTED TO	RT1	34.	13.20	11.	4.	1.	.19		
3 COMBINED AT	COMB1	112.	13.00	35.	11.	4.	.55		
ROUTED TO	RT2	110.	13.60	35.	11.	4.	.55		
HYDROGRAPH AT	SECT16	61.	12.60	13.	4.	2.	.14		
HYDROGRAPH AT	SECT15	89.	13.40	31.	9.	4.	.31		
3 COMBINED AT	COMB2	210.	13.60	78.	24.	10.	1.00		
ROUTED TO	RT3	207.	13.80	77.	24.	10.	1.00		
HYDROGRAPH AT	SECT21	170.	12.80	44.	13.	5.	.42		
HYDROGRAPH AT	SECT22	133.	12.80	37.	12.	5.	.82		
3 COMBINED AT	COMB3	392.	13.00	156.	49.	20.	2.24		
ROUTED TO	RT4	382.	13.20	155.	49.	20.	2.24		
HYDROGRAPH AT	SECT12	6.	15.00	4.	2.	1.	.50		
ROUTED TO	RT5	6.	15.60	4.	2.	1.	.50		
HYDROGRAPH AT	SECT11	50.	13.40	21.	7.	3.	.51		
2 COMBINED AT	COMB4	50.	13.40	24.	9.	4.	1.01		
ROUTED TO	RT6	49.	13.60	24.	9.	4.	1.01		
HYDROGRAPH AT	SECT10	62.	12.80	19.	6.	3.	.50		
2 COMBINED AT	COMB5	82.	13.40	42.	15.	6.	1.51		
ROUTED TO	RT7	81.	14.00	41.	15.	6.	1.51		
HYDROGRAPH AT	SECT13	54.	13.00	26.	10.	4.	1.00		
ROUTED TO	RT8	53.	13.60	25.	10.	4.	1.00		
HYDROGRAPH AT	SECT14	15.	14.60	10.	4.	2.	1.00		
HYDROGRAPH AT	SECT15	78.	13.40	31.	10.	4.	.69		

4 COMBINED AT	COMB6	201.	13.80	104.	39.	16.	4.20
ROUTED TO	RT9	200.	14.20	103.	39.	16.	4.20
HYDROGRAPH AT	SECT24	27.	13.80	17.	7.	3.	1.00
ROUTED TO	RT10	27.	14.40	17.	7.	3.	1.00
HYDROGRAPH AT	SECT23	14.	15.20	10.	4.	2.	1.00
HYDROGRAPH AT	SECT22	71.	12.60	13.	4.	2.	.13
4 COMBINED AT	COMB7	245.	14.20	134.	54.	22.	6.33
ROUTED TO	RT11	245.	14.60	133.	54.	22.	6.33
HYDROGRAPH AT	SECT26	128.	14.60	74.	24.	10.	1.00
2 COMBINED AT	COMB8	373.	14.60	203.	78.	31.	7.33
ROUTED TO	RT12	371.	15.00	203.	78.	31.	7.33
HYDROGRAPH AT	SECT28	66.	12.80	23.	8.	3.	.69
HYDROGRAPH AT	SECT27	117.	14.00	60.	20.	8.	1.00
4 COMBINED AT	SOMB9	673.	14.80	426.	155.	62.	11.26
ROUTED TO	RT13	658.	15.20	424.	155.	62.	11.26
HYDROGRAPH AT	SECT35	155.	12.80	41.	14.	5.	1.09
ROUTED TO	RT14	152.	13.00	40.	14.	5.	1.09
HYDROGRAPH AT	SECT34	90.	13.60	38.	12.	5.	.67
HYDROGRAPH AT	SECT33	116.	12.80	28.	8.	3.	.26
HYDROGRAPH AT	SECT33	116.	12.60	24.	8.	3.	.53
5 COMBINED AT	OUTLTB	770.	15.00	533.	197.	79.	13.81

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RT1	3	1.69	34.74	794.27	.69	12.00	34.39	792.00	.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= 6.956 EXCESS= .000 OUTFLOW= 6.945 BASIN STORAGE= .000 PERCENT ERROR= .153

RT2	3	1.75	111.93	818.94	.75	12.00	110.41	816.00	.76

CONTINUITY SUMMARY (AC-FT) - INFLOW= 22.013 EXCESS= .000 OUTFLOW= 21.985 BASIN STORAGE= .000 PERCENT ERROR= .128

RT3	3	1.88	208.76	831.65	.91	12.00	206.62	828.00	.91

CONTINUITY SUMMARY (AC-FT) - INFLOW= 48.425 EXCESS= .000 OUTFLOW= 48.373 BASIN STORAGE= .000 PERCENT ERROR= .109

RT4	3	1.82	390.36	794.95	.82	12.00	381.54	792.00	.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= 97.801 EXCESS= .000 OUTFLOW= 97.665 BASIN STORAGE= .000 PERCENT ERROR= .138

RT5	3	5.00	6.26	939.04	.14	12.00	6.26	936.00	.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= 3.839 EXCESS= .000 OUTFLOW= 3.836 BASIN STORAGE= .000 PERCENT ERROR= .088

RT6	3	2.98	49.53	819.72	.33	12.00	49.40	816.00	.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= 17.864 EXCESS= .000 OUTFLOW= 17.853 BASIN STORAGE= .000 PERCENT ERROR= .064

RT7	3	2.49	81.35	840.85	.38	12.00	81.32	840.00	.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= 30.369 EXCESS= .000 OUTFLOW= 30.312 BASIN STORAGE= .000 PERCENT ERROR= .188

RT8	3	2.97	53.87	813.41	.36	12.00	53.15	816.00	.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= 19.076 EXCESS= .000 OUTFLOW= 19.046 BASIN STORAGE= .000 PERCENT ERROR= .158

RT9	3	1.99	200.83	854.77	.35	12.00	200.42	852.00	.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= 77.933 EXCESS= .000 OUTFLOW= 77.860 BASIN STORAGE= .001 PERCENT ERROR= .093

RT10	3	3.27	26.96	864.60	.25	12.00	26.95	864.00	.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= 13.289 EXCESS= .000 OUTFLOW= 13.276 BASIN STORAGE= .000 PERCENT ERROR= .101

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            RT11      3        2.03    244.86    874.76       .32     12.00    244.73    876.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW=  107.126 EXCESS=     .000 OUTFLOW=  106.901 BASIN STORAGE=     .001 PERCENT ERROR=     .209

            RT12      3        1.83    372.36    895.88       .40     12.00    371.43    900.00         .40

CONTINUITY SUMMARY (AC-FT) - INFLOW=  155.491 EXCESS=     .000 OUTFLOW=  155.397 BASIN STORAGE=     .002 PERCENT ERROR=     .059

            RT13      3        1.67    672.65    902.93       .51     12.00    658.28    912.00         .51

CONTINUITY SUMMARY (AC-FT) - INFLOW=  308.252 EXCESS=     .000 OUTFLOW=  308.038 BASIN STORAGE=     .003 PERCENT ERROR=     .068

            RT14      3        2.59    154.18    786.78       .47     12.00    152.42    780.00         .46

CONTINUITY SUMMARY (AC-FT) - INFLOW=   27.175 EXCESS=     .000 OUTFLOW=   27.105 BASIN STORAGE=     .000 PERCENT ERROR=     .258


*** NORMAL END OF HEC-1 ***
NORMAL END OF HEC-1
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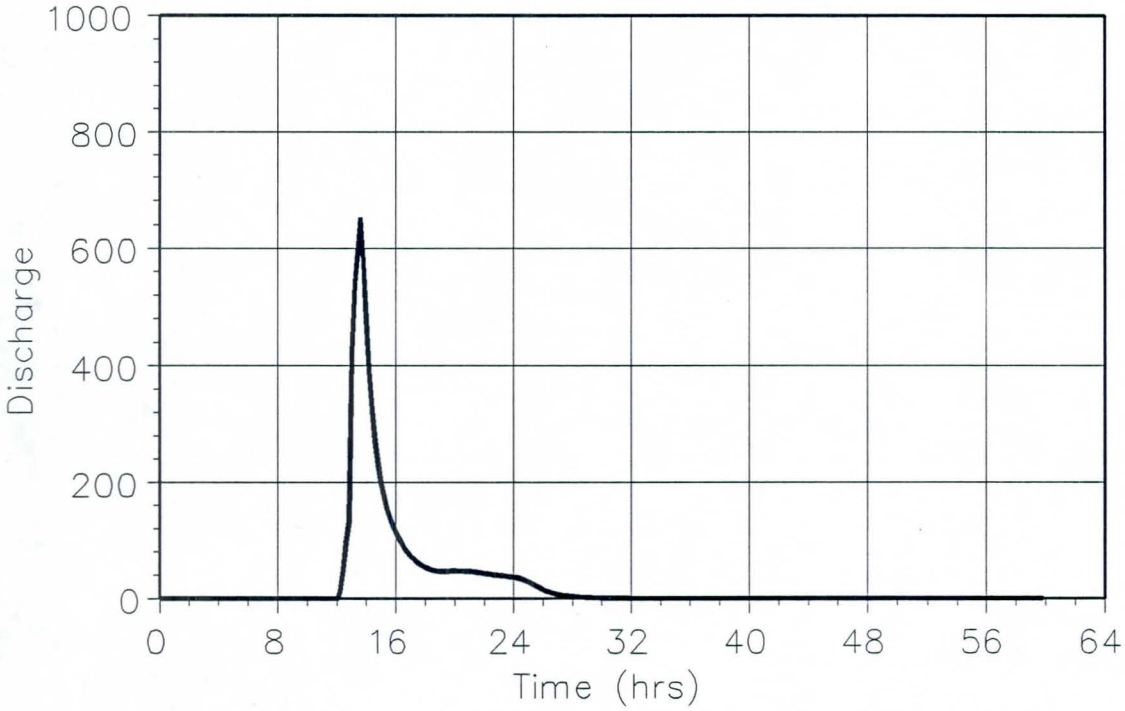
Outlet C - Model



Location: Southwest Loop and 56th Street
Volume: 134 Acre-Feet
Peak Q: 651 Cubic Feet per Second
100, 24

OUTLET C INFLOW HYDROGRAPH

HEC2 S/N: 39001226 HMVersion: 5.00 Data File: OUTLETC

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****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/15/1989  TIME  16:59:08 *
*                                      *
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*                                      *
*                                      *
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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
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:::::::::::::::::::::::::::::::::::::::::::::
:::                                       :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION  :::
:::                                       :::
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H A E S T A D   M E T H O D S
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

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

              *DIAGRAM
  1           ID       PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR OUTLET-C BASIN
  2           ID       CONTRIBUTING SECTIONS LISTED BELOW:
  3           ID            SECTION 16-2, 16-3, 20, 21-2, 29, 32
  4           ID       INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID       100 YEAR - 24 HOUR STORM (BALANCED TRIANGULAR DISTRIBUTION)
  6           ID       HDR - PHOENIX
  7           ID
  8           ID
  9           IT      12                    300
 10           IO       3       0       0

 11           KK  SECT16   OUTLET 3
 12           KM       TEMPE
 13           KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 16 - OUTLET 3
 14           KO       1       2
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA    0.23
 17           LS    3.00      88
 18           UD    0.39

 19           KK     RT1
 20           KM       ROUTE SECTION 16 OUTLET 3 HYDROGRAPH TO 56TH/RAY INTERSECTION
 21           RK    5280  0.0010   0.016            TRAP     0.0    25.0

 22           KK  SECT20
 23           KM       TEMPE
 24           KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 20
 25           BA    0.29
 26           LS    1.10      83
 27           UD    0.28

 28           KK   COMB1
 29           KM       COMBINE SECT10 * RT1 TO GIVE HYDROGRAPH AT 56TH/RAY INTERSECTION
 30           HC       2

 31           KK     RT2
 32           KM       ROUTE COMB1 HYDROGRAPH TO 56TH/CHANDLER INTERSECTION
 33           RK    5280  0.0010   0.016            TRAP     0.0    25.0

 34           KK  SECT29
 35           KM       CHANDLER
 36           KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 29
 37           BA    0.50
 38           LS    2.12      85
 39           UD    0.62

 40           KK   COMB2
 41           KM       COMBINE SECT29 * RT2 TO GIVE HYDROGRAPH AT 56TH/CHANDLER INTERSECTION
 42           HC       2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  43          KK     RT3
  44          KM       ROUTE COMB2 HYDROGRAPH TO OUTLET-C AT 56TH/SOUTHWEST LOOP INTERSECTION
  45          RK    3600  0.0010   0.016            TRAP     0.0    25.0

  46          KK  SECT16   OUTLET 2
  47          KM       TEMPE
  48          KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 16 - OUTLET 2
  49          BA    0.50
  50          LS    1.52      83
  51          UD    0.54

  52          KK     RT4
  53          KM       ROUTE SECT16 - OUTLET 2 HYDROGRAPH TO RAY/SO.PAC RR INTERSECTION
  54          RK    5400  0.0010   0.016            TRAP     0.0    25.0

  55          KK  SECT21   OUTLET 2
  56          KM       TEMPE
  57          KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 21 - OUTLET 2
  58          BA    0.59
  59          LS    1.60      83
  60          UD    0.60

  61          KK   COMB3
  62          KM       COMBINE SECT21-2 * RT4 * HYDROGRAPHS AT RAY/SO.PAC. RR INTERSECTION
  63          HC       2

  64          KK     RT5
  65          KM       ROUTE COMB3 HYDROGRAPH TO CHANDLER/SO.PAC. RR INTERSECTION
  66          RK    5500  0.0010   0.016            TRAP     0.0    25.0

  67          KK  SECT28   OUTLET 2
  68          KM       CHANDLER
  69          KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 28 - OUTLET 2
  70          BA    0.30
  71          LS    1.97      85
  72          UD    0.58

  73          KK   COMB4
  74          KM       COMBINE SECT28-2 * RT5 HYDROGRAPHS AT CHANDLER/SO.PAC. RR INTERSECTION
  75          HC       2

  76          KK     RT6
  77          KM       ROUTE COMB4 HYDROGRAPH TO SOUTHWEST LOOP/SO.PAC. RR INTERSECTION
  78          RK    3700  0.0010   0.016            TRAP     0.0    25.0

  79          KK  SECT32
  80          KM       CHANDLER
  81          KM       COMPUTE RUNOFF HYDROGRAPH FOR SECTION 32
  82          BA    0.33
  83          LS    1.50      83
  84          UD    0.60
```

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

  85          KK  OUTLTC
  86          KM       COMBINE RT6 * SECT32 * RT3 TO GIVE HYDOGRAPH AT OUTLET-C AT
  87          KM       SOUTHWEST LOOP/SO.PAC. RR INTERSECTION
  88          HC       3
  89          KO       1       2                       60
  90          ZZ
```

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

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

   11      SECT16
               V
               V
   19        RT1
               .
               .
   22          .      SECT20
               .          .
               .          .
   28       COMB1............
               V
               V
   31        RT2
               .
               .
   34          .      SECT29
               .          .
               .          .
   40       COMB2............
               V
               V
   43        RT3
               .
               .
   46          .      SECT16
               .          V
               .          V
   52          .        RT4
               .          .
               .          .
   55          .          .      SECT21
               .          .          .
               .          .          .
   61          .       COMB3............
               .          V
               .          V
   64          .        RT5
               .          .
               .          .
   67          .          .      SECT28
               .          .          .
               .          .          .
   73          .       COMB4............
               .          V
               .          V
   76          .        RT6
               .          .
               .          .
   79          .          .      SECT32
               .          .          .
               .          .          .
   85      OUTLTC........................
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

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HEC2 S/N: 39001226        HMVersion: 5.00    Data File: OUTLETC

*****************************************                    *****************************************
*                                       *                    *                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *    U.S. ARMY CORPS OF ENGINEERS       *
*            FEBRUARY 1981              *                    *  THE HYDROLOGIC ENGINEERING CENTER    *
*          REVISED 02 AUG 88            *                    *          609 SECOND STREET            *
*                                       *                    *       DAVIS, CALIFORNIA 95616         *
*  RUN DATE  08/15/1989  TIME  16:59:08 *                    *                                       *
*                                       *                    *                                       *
*****************************************                    *****************************************


                              PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR OUTLET-C BASIN
                              CONTRIBUTING SECTIONS LISTED BELOW:
                                   SECTION 16-2, 16-3, 20, 21-2, 29, 32
                              INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
                              100 YEAR - 24 HOUR STORM (BALANCED TRIANGULAR DISTRIBUTION)
                              HDR - PHOENIX


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

    IT          HYDROGRAPH TIME DATA
                       NMIN          12  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3    0  ENDING DATE
                     NDTIME       1148  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .20 HOURS
                      TOTAL TIME BASE   59.80 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


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


          **************
          *            *
 11 KK    *   SECT16   *        OUTLET 3
          *            *
          **************
                              TEMPE
                              COMPUTE RUNOFF HYDROGRAPH FOR SECTION 16 - OUTLET 3

 14 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           1  PRINT CONTROL
                      IPLOT           2  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

             SUBBASIN RUNOFF DATA

 16 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .23  SUBBASIN AREA

                PRECIPITATION DATA

 15 PH                                 DEPTHS FOR   1-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
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                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

 17 LS          SCS LOSS RATE
                     STRTL        3.00  INITIAL ABSTRACTION
                    CRVNBR       88.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 18 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         .39  LAG

                                                        ***

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

                                                UNIT HYDROGRAPH
                                            12 END-OF-PERIOD ORDINATES
              74.      215.      209.      121.       61.       31.       16.        8.        4.        2.
               1.        0.
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****

HYDROGRAPH AT STATION SECT16

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	*	2		0600	151	.00	.00	.00	0.
1		0012	2	.00	.00	.00	0.	*	2		0612	152	.00	.00	.00	0.
1		0024	3	.01	.01	.00	0.	*	2		0624	153	.00	.00	.00	0.
1		0036	4	.01	.01	.00	0.	*	2		0636	154	.00	.00	.00	0.
1		0048	5	.01	.01	.00	0.	*	2		0648	155	.00	.00	.00	0.
1		0100	6	.01	.01	.00	0.	*	2		0700	156	.00	.00	.00	0.
1		0112	7	.01	.01	.00	0.	*	2		0712	157	.00	.00	.00	0.
1		0124	8	.01	.01	.00	0.	*	2		0724	158	.00	.00	.00	0.
1		0136	9	.01	.01	.00	0.	*	2		0736	159	.00	.00	.00	0.
1		0148	10	.01	.01	.00	0.	*	2		0748	160	.00	.00	.00	0.
1		0200	11	.01	.01	.00	0.	*	2		0800	161	.00	.00	.00	0.
1		0212	12	.01	.01	.00	0.	*	2		0812	162	.00	.00	.00	0.
1		0224	13	.01	.01	.00	0.	*	2		0824	163	.00	.00	.00	0.
1		0236	14	.01	.01	.00	0.	*	2		0836	164	.00	.00	.00	0.
1		0248	15	.01	.01	.00	0.	*	2		0848	165	.00	.00	.00	0.
1		0300	16	.01	.01	.00	0.	*	2		0900	166	.00	.00	.00	0.
1		0312	17	.01	.01	.00	0.	*	2		0912	167	.00	.00	.00	0.
1		0324	18	.01	.01	.00	0.	*	2		0924	168	.00	.00	.00	0.
1		0336	19	.01	.01	.00	0.	*	2		0936	169	.00	.00	.00	0.
1		0348	20	.01	.01	.00	0.	*	2		0948	170	.00	.00	.00	0.
1		0400	21	.01	.01	.00	0.	*	2		1000	171	.00	.00	.00	0.
1		0412	22	.01	.01	.00	0.	*	2		1012	172	.00	.00	.00	0.
1		0424	23	.01	.01	.00	0.	*	2		1024	173	.00	.00	.00	0.
1		0436	24	.01	.01	.00	0.	*	2		1036	174	.00	.00	.00	0.
1		0448	25	.01	.01	.00	0.	*	2		1048	175	.00	.00	.00	0.
1		0500	26	.01	.01	.00	0.	*	2		1100	176	.00	.00	.00	0.
1		0512	27	.01	.01	.00	0.	*	2		1112	177	.00	.00	.00	0.
1		0524	28	.01	.01	.00	0.	*	2		1124	178	.00	.00	.00	0.
1		0536	29	.01	.01	.00	0.	*	2		1136	179	.00	.00	.00	0.
1		0548	30	.01	.01	.00	0.	*	2		1148	180	.00	.00	.00	0.
1		0600	31	.01	.01	.00	0.	*	2		1200	181	.00	.00	.00	0.
1		0612	32	.01	.01	.00	0.	*	2		1212	182	.00	.00	.00	0.
1		0624	33	.01	.01	.00	0.	*	2		1224	183	.00	.00	.00	0.
1		0636	34	.01	.01	.00	0.	*	2		1236	184	.00	.00	.00	0.
1		0648	35	.01	.01	.00	0.	*	2		1248	185	.00	.00	.00	0.
1		0700	36	.01	.01	.00	0.	*	2		1300	186	.00	.00	.00	0.
1		0712	37	.01	.01	.00	0.	*	2		1312	187	.00	.00	.00	0.
1		0724	38	.01	.01	.00	0.	*	2		1324	188	.00	.00	.00	0.
1		0736	39	.01	.01	.00	0.	*	2		1336	189	.00	.00	.00	0.
1		0748	40	.01	.01	.00	0.	*	2		1348	190	.00	.00	.00	0.
1		0800	41	.01	.01	.00	0.	*	2		1400	191	.00	.00	.00	0.
1		0812	42	.01	.01	.00	0.	*	2		1412	192	.00	.00	.00	0.
1		0824	43	.01	.01	.00	0.	*	2		1424	193	.00	.00	.00	0.
1		0836	44	.01	.01	.00	0.	*	2		1436	194	.00	.00	.00	0.
1		0848	45	.01	.01	.00	0.	*	2		1448	195	.00	.00	.00	0.
1		0900	46	.01	.01	.00	0.	*	2		1500	196	.00	.00	.00	0.
1		0912	47	.02	.02	.00	0.	*	2		1512	197	.00	.00	.00	0.
1		0924	48	.02	.02	.00	0.	*	2		1524	198	.00	.00	.00	0.
1		0936	49	.02	.02	.00	0.	*	2		1536	199	.00	.00	.00	0.
1		0948	50	.02	.02	.00	0.	*	2		1548	200	.00	.00	.00	0.
1		1000	51	.02	.02	.00	0.	*	2		1600	201	.00	.00	.00	0.

1	1012	52	.02	.02	.00	0.	*	2	1612	202	.00	.00	.00	0.
1	1024	53	.03	.03	.00	0.	*	2	1624	203	.00	.00	.00	0.
1	1036	54	.03	.03	.00	0.	*	2	1636	204	.00	.00	.00	0.
1	1048	55	.03	.03	.00	0.	*	2	1648	205	.00	.00	.00	0.
1	1100	56	.04	.04	.00	0.	*	2	1700	206	.00	.00	.00	0.
1	1112	57	.04	.04	.00	0.	*	2	1712	207	.00	.00	.00	0.
1	1124	58	.05	.05	.00	0.	*	2	1724	208	.00	.00	.00	0.
1	1136	59	.07	.07	.00	0.	*	2	1736	209	.00	.00	.00	0.
1	1148	60	.23	.23	.00	0.	*	2	1748	210	.00	.00	.00	0.
1	1200	61	.44	.44	.00	0.	*	2	1800	211	.00	.00	.00	0.
1	1212	62	1.09	1.09	.00	0.	*	2	1812	212	.00	.00	.00	0.
1	1224	63	.29	.29	.00	0.	*	2	1824	213	.00	.00	.00	0.
1	1236	64	.19	.19	.00	0.	*	2	1836	214	.00	.00	.00	0.
1	1248	65	.06	.06	.00	0.	*	2	1848	215	.00	.00	.00	0.
1	1300	66	.05	.04	.00	0.	*	2	1900	216	.00	.00	.00	0.
1	1312	67	.04	.04	.00	1.	*	2	1912	217	.00	.00	.00	0.
1	1324	68	.03	.03	.00	1.	*	2	1924	218	.00	.00	.00	0.
1	1336	69	.03	.02	.01	2.	*	2	1936	219	.00	.00	.00	0.
1	1348	70	.03	.02	.01	3.	*	2	1948	220	.00	.00	.00	0.
1	1400	71	.02	.02	.01	3.	*	2	2000	221	.00	.00	.00	0.
1	1412	72	.02	.02	.01	4.	*	2	2012	222	.00	.00	.00	0.
1	1424	73	.02	.02	.01	4.	*	2	2024	223	.00	.00	.00	0.
1	1436	74	.02	.01	.01	4.	*	2	2036	224	.00	.00	.00	0.
1	1448	75	.02	.01	.01	4.	*	2	2048	225	.00	.00	.00	0.
1	1500	76	.02	.01	.01	4.	*	2	2100	226	.00	.00	.00	0.
1	1512	77	.01	.01	.00	4.	*	2	2112	227	.00	.00	.00	0.
1	1524	78	.01	.01	.00	4.	*	2	2124	228	.00	.00	.00	0.
1	1536	79	.01	.01	.00	3.	*	2	2136	229	.00	.00	.00	0.
1	1548	80	.01	.01	.00	3.	*	2	2148	230	.00	.00	.00	0.
1	1600	81	.01	.01	.00	3.	*	2	2200	231	.00	.00	.00	0.
1	1612	82	.01	.01	.00	3.	*	2	2212	232	.00	.00	.00	0.
1	1624	83	.01	.01	.00	3.	*	2	2224	233	.00	.00	.00	0.
1	1636	84	.01	.00	.00	2.	*	2	2236	234	.00	.00	.00	0.
1	1648	85	.01	.00	.00	2.	*	2	2248	235	.00	.00	.00	0.
1	1700	86	.01	.00	.00	2.	*	2	2300	236	.00	.00	.00	0.
1	1712	87	.01	.00	.00	2.	*	2	2312	237	.00	.00	.00	0.
1	1724	88	.01	.00	.00	2.	*	2	2324	238	.00	.00	.00	0.
1	1736	89	.01	.00	.00	2.	*	2	2336	239	.00	.00	.00	0.
1	1748	90	.01	.00	.00	2.	*	2	2348	240	.00	.00	.00	0.
1	1800	91	.01	.00	.00	2.	*	3	0000	241	.00	.00	.00	0.
1	1812	92	.01	.01	.00	2.	*	3	0012	242	.00	.00	.00	0.
1	1824	93	.01	.00	.00	2.	*	3	0024	243	.00	.00	.00	0.
1	1836	94	.01	.00	.00	2.	*	3	0036	244	.00	.00	.00	0.
1	1848	95	.01	.00	.00	3.	*	3	0048	245	.00	.00	.00	0.
1	1900	96	.01	.00	.00	3.	*	3	0100	246	.00	.00	.00	0.
1	1912	97	.01	.00	.00	3.	*	3	0112	247	.00	.00	.00	0.
1	1924	98	.01	.00	.00	3.	*	3	0124	248	.00	.00	.00	0.
1	1936	99	.01	.00	.00	3.	*	3	0136	249	.00	.00	.00	0.
1	1948	100	.01	.00	.00	3.	*	3	0148	250	.00	.00	.00	0.
1	2000	101	.01	.00	.00	2.	*	3	0200	251	.00	.00	.00	0.
1	2012	102	.01	.00	.00	2.	*	3	0212	252	.00	.00	.00	0.
1	2024	103	.01	.00	.00	2.	*	3	0224	253	.00	.00	.00	0.
1	2036	104	.01	.00	.00	2.	*	3	0236	254	.00	.00	.00	0.
1	2048	105	.01	.00	.00	2.	*	3	0248	255	.00	.00	.00	0.
1	2100	106	.01	.00	.00	2.	*	3	0300	256	.00	.00	.00	0.
1	2112	107	.01	.00	.00	2.	*	3	0312	257	.00	.00	.00	0.
1	2124	108	.01	.00	.00	2.	*	3	0324	258	.00	.00	.00	0.
1	2136	109	.01	.00	.00	2.	*	3	0336	259	.00	.00	.00	0.
1	2148	110	.01	.00	.00	2.	*	3	0348	260	.00	.00	.00	0.
1	2200	111	.01	.00	.00	2.	*	3	0400	261	.00	.00	.00	0.
1	2212	112	.01	.00	.00	2.	*	3	0412	262	.00	.00	.00	0.
1	2224	113	.01	.00	.00	2.	*	3	0424	263	.00	.00	.00	0.
1	2236	114	.01	.00	.00	2.	*	3	0436	264	.00	.00	.00	0.
1	2248	115	.01	.00	.00	2.	*	3	0448	265	.00	.00	.00	0.
1	2300	116	.01	.00	.00	2.	*	3	0500	266	.00	.00	.00	0.
1	2312	117	.01	.00	.00	2.	*	3	0512	267	.00	.00	.00	0.
1	2324	118	.01	.00	.00	2.	*	3	0524	268	.00	.00	.00	0.
1	2336	119	.01	.00	.00	2.	*	3	0536	269	.00	.00	.00	0.
1	2348	120	.01	.00	.00	2.	*	3	0548	270	.00	.00	.00	0.
2	0000	121	.01	.00	.00	2.	*	3	0600	271	.00	.00	.00	0.
2	0012	122	.00	.00	.00	2.	*	3	0612	272	.00	.00	.00	0.
2	0024	123	.00	.00	.00	1.	*	3	0624	273	.00	.00	.00	0.
2	0036	124	.00	.00	.00	1.	*	3	0636	274	.00	.00	.00	0.
2	0048	125	.00	.00	.00	0.	*	3	0648	275	.00	.00	.00	0.
2	0100	126	.00	.00	.00	0.	*	3	0700	276	.00	.00	.00	0.
2	0112	127	.00	.00	.00	0.	*	3	0712	277	.00	.00	.00	0.
2	0124	128	.00	.00	.00	0.	*	3	0724	278	.00	.00	.00	0.
2	0136	129	.00	.00	.00	0.	*	3	0736	279	.00	.00	.00	0.
2	0148	130	.00	.00	.00	0.	*	3	0748	280	.00	.00	.00	0.
2	0200	131	.00	.00	.00	0.	*	3	0800	281	.00	.00	.00	0.

2	0212	132	.00	.00	.00	0.	*	3	0812	282	.00	.00	.00	0.
2	0224	133	.00	.00	.00	0.	*	3	0824	283	.00	.00	.00	0.
2	0236	134	.00	.00	.00	0.	*	3	0836	284	.00	.00	.00	0.
2	0248	135	.00	.00	.00	0.	*	3	0848	285	.00	.00	.00	0.
2	0300	136	.00	.00	.00	0.	*	3	0900	286	.00	.00	.00	0.
2	0312	137	.00	.00	.00	0.	*	3	0912	287	.00	.00	.00	0.
2	0324	138	.00	.00	.00	0.	*	3	0924	288	.00	.00	.00	0.
2	0336	139	.00	.00	.00	0.	*	3	0936	289	.00	.00	.00	0.
2	0348	140	.00	.00	.00	0.	*	3	0948	290	.00	.00	.00	0.
2	0400	141	.00	.00	.00	0.	*	3	1000	291	.00	.00	.00	0.
2	0412	142	.00	.00	.00	0.	*	3	1012	292	.00	.00	.00	0.
2	0424	143	.00	.00	.00	0.	*	3	1024	293	.00	.00	.00	0.
2	0436	144	.00	.00	.00	0.	*	3	1036	294	.00	.00	.00	0.
2	0448	145	.00	.00	.00	0.	*	3	1048	295	.00	.00	.00	0.
2	0500	146	.00	.00	.00	0.	*	3	1100	296	.00	.00	.00	0.
2	0512	147	.00	.00	.00	0.	*	3	1112	297	.00	.00	.00	0.
2	0524	148	.00	.00	.00	0.	*	3	1124	298	.00	.00	.00	0.
2	0536	149	.00	.00	.00	0.	*	3	1136	299	.00	.00	.00	0.
2	0548	150	.00	.00	.00	0.	*	3	1148	300	.00	.00	.00	0.
							*							

****

TOTAL RAINFALL = 3.62, TOTAL LOSS = 3.43, TOTAL EXCESS = .19

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
4.	15.00	(CFS)	3.	1.	0.	0.
		(INCHES)	.115	.194	.194	.194
		(AC-FT)	1.	2.	2.	2.

CUMULATIVE AREA = .23 SQ MI

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

          **************
          *            *
 19 KK    *      RT1   *
          *            *
          **************
                          ROUTE SECTION 16 OUTLET 3 HYDROGRAPH TO 56TH/RAY INTERSECTION

            HYDROGRAPH ROUTING DATA

 21 RK        KINEMATIC WAVE STREAM ROUTING
                        L       5280.  CHANNEL LENGTH
                        S       .0010  SLOPE
                        N        .016  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .00  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD         .00  BOTTOM WIDTH OR DIAMETER
                        Z       25.00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                                  COMPUTED KINEMATIC PARAMETERS
                                       VARIABLE TIME STEP
                                    (DT SHOWN IS A MINIMUM)
                ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

                   3        .64     1.33       1.55    125.71      4.12   962.87       .19      1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=    2.376  EXCESS=     .000 OUTFLOW=    2.375 BASIN STORAGE=     .000 PERCENT ERROR=     .027

                                     INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   3        .64     1.33      12.00                4.12   960.00       .19

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

                     HYDROGRAPH AT STATION      RT1

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR      24-HR      72-HR    59.80-HR
      4.      16.00       (CFS)       3.         1.         0.          0.
                       (INCHES)     .115       .194       .194        .194
                        (AC-FT)       1.         2.         2.          2.

                     CUMULATIVE AREA =     .23 SQ MI


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

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          *            *
 22 KK    *    SECT20  *
          *            *
          **************
                          TEMPE
                          COMPUTE RUNOFF HYDROGRAPH FOR SECTION 20

            SUBBASIN RUNOFF DATA

 25 BA        SUBBASIN CHARACTERISTICS
                    TAREA         .29  SUBBASIN AREA

              PRECIPITATION DATA

 15 PH                                DEPTHS FOR   1-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
.71	1.39	2.44	2.66	2.81	3.11	3.33	3.70	.00	.00	.00	.00

STORM AREA = 18.38

```
26 LS          SCS LOSS RATE
                    STRTL        1.10  INITIAL ABSTRACTION *
                   CRVNBR       83.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

27 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .28  LAG *
```

*IA and TLAG input incorrectly, should be 1.51 and .43 — resulting in incorrect peak Q & volume values.

***

UNIT HYDROGRAPH
9 END-OF-PERIOD ORDINATES

193.	370.	218.	90.	38.	16.	7.	3.	1.

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

HYDROGRAPH AT STATION SECT20

TOTAL RAINFALL = 3.62, TOTAL LOSS = 2.23, TOTAL EXCESS = 1.39

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
233.	12.40	(CFS)	38.	11.	4.	4.
		(INCHES)	1.222	1.390	1.390	1.390
		(AC-FT)	19.	21.	21.	21.

CUMULATIVE AREA = .29 SQ MI

*** ***

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          **************
          *            *
28 KK     *     COMB1  *
          *            *
          **************
```

COMBINE SECT10 * RT1 TO GIVE HYDROGRAPH AT 56TH/RAY INTERSECTION

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

***

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

HYDROGRAPH AT STATION COMB1

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
233.	12.40	(CFS)	40.	12.	5.	5.
		(INCHES)	.712	.861	.861	.861
		(AC-FT)	20.	24.	24.	24.

CUMULATIVE AREA = .52 SQ MI

*** ***

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          **************
          *            *
31 KK     *       RT2  *
          *            *
          **************
```

ROUTE COMB1 HYDROGRAPH TO 56TH/CHANDLER INTERSECTION

HYDROGRAPH ROUTING DATA

```
33 RK          KINEMATIC WAVE STREAM ROUTING
                         L       5280.  CHANNEL LENGTH
```

```
                S       .0010  SLOPE
                N        .016  CHANNEL ROUGHNESS COEFFICIENT
               CA         .00  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD         .00  BOTTOM WIDTH OR DIAMETER
                Z       25.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
        ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                CELERITY
                                       (MIN)     (FT)     (CFS)     (MIN)       (IN)      (FPS)

           3         .64     1.33      1.98    440.00    230.93    767.25       .86       3.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=   23.881  EXCESS=     .000 OUTFLOW=   23.812 BASIN STORAGE=     .000 PERCENT ERROR=     .289

                                 INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

           3         .64     1.33     12.00              229.69    768.00       .85

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

                 HYDROGRAPH AT STATION      RT2

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR      24-HR       72-HR     59.80-HR
   230.       12.80       (CFS)     39.        12.          5.          5.
                        (INCHES)   .694       .853        .853        .853
                         (AC-FT)    19.        24.         24.         24.

                       CUMULATIVE AREA =     .52 SQ MI


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


          **************
          *            *
 34 KK    *   SECT29   *
          *            *
          **************
                         CHANDLER
                         COMPUTE RUNOFF HYDROGRAPH FOR SECTION 29

            SUBBASIN RUNOFF DATA

 37 BA        SUBBASIN CHARACTERISTICS
                   TAREA         .50  SUBBASIN AREA

              PRECIPITATION DATA

 15 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                 STORM AREA =   18.38

 38 LS        SCS LOSS RATE
                   STRTL        2.12  INITIAL ABSTRACTION
                  CRVNBR       85.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 39 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .62  LAG

                                          ***

                                          UNIT HYDROGRAPH
                                       18 END-OF-PERIOD ORDINATES
            57.      193.      319.      330.      265.      165.      103.       67.       43.       27.
```

```
            17.       11.       7.       4.       3.       2.       1.       0.

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

                     HYDROGRAPH AT STATION   SECT29

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.93, TOTAL EXCESS =     .69

 PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
   (CFS)      (HR)                 6-HR       24-HR       72-HR     59.80-HR
     90.     13.00       (CFS)      29.         9.          4.          4.
                       (INCHES)    .539        .689        .689        .689
                       (AC-FT)      14.         18.         18.         18.

                     CUMULATIVE AREA =     .50 SQ MI


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


          **************
          *            *
 40 KK    *     COMB2  *
          *            *
          **************
                         COMBINE SECT29 * RT2 TO GIVE HYDROGRAPH AT 56TH/CHANDLER INTERSECTION

 42 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                     HYDROGRAPH AT STATION    COMB2

 PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
   (CFS)      (HR)                 6-HR       24-HR       72-HR     59.80-HR
    304.     12.80       (CFS)      67.        21.          9.          9.
                       (INCHES)    .615        .773        .773        .773
                       (AC-FT)      33.         42.         42.         42.

                     CUMULATIVE AREA =    1.02 SQ MI


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


          **************
          *            *
 43 KK    *       RT3  *
          *            *
          **************
                         ROUTE COMB2 HYDROGRAPH TO OUTLET-C AT 56TH/SOUTHWEST LOOP INTERSECTION

            HYDROGRAPH ROUTING DATA

 45 RK          KINEMATIC WAVE STREAM ROUTING
                         L       3600.  CHANNEL LENGTH
                         S       .0010  SLOPE
                         N        .016  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .00  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD         .00  BOTTOM WIDTH OR DIAMETER
                         Z       25.00  SIDE SLOPE
                     DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                          ***
                                   COMPUTED KINEMATIC PARAMETERS
                                        VARIABLE TIME STEP
                                     (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                             PEAK                  CELERITY
                                                  (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

                    3        .64      1.33       2.17    514.29    301.79   782.55       .77      3.96
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=   42.042  EXCESS=     .000 OUTFLOW=   41.914 BASIN STORAGE=     .000 PERCENT ERROR=     .304

                                        INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                     3        .64      1.33      12.00            294.07    792.00       .78

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

                     HYDROGRAPH AT STATION      RT3

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR      24-HR      72-HR     59.80-HR
    294.      13.20       (CFS)      68.        21.         9.          9.
                        (INCHES)    .621       .781       .781        .781
                         (AC-FT)     34.        42.        42.         42.

                     CUMULATIVE AREA =    1.02 SQ MI


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


          **************
          *            *
 46 KK    *   SECT16   *        OUTLET 2
          *            *
          **************
                            TEMPE
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 16 - OUTLET 2

            SUBBASIN RUNOFF DATA

 49 BA        SUBBASIN CHARACTERISTICS
                   TAREA         .50  SUBBASIN AREA

              PRECIPITATION DATA

 15 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

 50 LS        SCS LOSS RATE
                   STRTL        1.52  INITIAL ABSTRACTION
                  CRVNBR       83.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 51 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .54  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          16 END-OF-PERIOD ORDINATES
            78.      265.      376.      338.      229.      130.       80.       48.       29.       17.
            10.        6.        4.        2.        1.        0.

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

                     HYDROGRAPH AT STATION   SECT16

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.56, TOTAL EXCESS =    1.06

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR      24-HR      72-HR     59.80-HR
    198.      12.80       (CFS)      48.        14.         6.          6.
                        (INCHES)    .899      1.063      1.063       1.063
                         (AC-FT)     24.        28.        28.         28.

                     CUMULATIVE AREA =     .50 SQ MI
```

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

          **************
          *            *
 52 KK    *     RT4    *
          *            *
          **************
                         ROUTE SECT16 - OUTLET 2 HYDROGRAPH TO RAY/SO.PAC RR INTERSECTION

            HYDROGRAPH ROUTING DATA

 54 RK        KINEMATIC WAVE STREAM ROUTING
                      L       5400.  CHANNEL LENGTH
                      S       .0010  SLOPE
                      N        .016  CHANNEL ROUGHNESS COEFFICIENT
                     CA         .00  CONTRIBUTING AREA
                  SHAPE        TRAP  CHANNEL SHAPE
                     WD         .00  BOTTOM WIDTH OR DIAMETER
                      Z       25.00  SIDE SLOPE
                  DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                  (DT SHOWN IS A MINIMUM)
              ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                CELERITY
                                             (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

                  3        .64     1.33      2.53    540.00    196.95    791.76      1.06      3.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=   28.345  EXCESS=     .000 OUTFLOW=   28.259 BASIN STORAGE=     .000 PERCENT ERROR=     .303

                                     INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                  3        .64     1.33     12.00              196.64    792.00      1.06

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

                   HYDROGRAPH AT STATION      RT4

 PEAK FLOW    TIME                        MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR      24-HR      72-HR     59.80-HR
   197.      13.20       (CFS)     48.        14.        6.          6.
                       (INCHES)   .886      1.060      1.060       1.060
                        (AC-FT)    24.        28.        28.         28.

                   CUMULATIVE AREA =     .50 SQ MI


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

          **************
          *            *
 55 KK    *   SECT21   *       OUTLET 2
          *            *
          **************
                         TEMPE
                         COMPUTE RUNOFF HYDROGRAPH FOR SECTION 21 - OUTLET 2

            SUBBASIN RUNOFF DATA

 58 BA        SUBBASIN CHARACTERISTICS
                  TAREA         .59  SUBBASIN AREA

              PRECIPITATION DATA

 15 PH                            DEPTHS FOR   1-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
                .71    1.39    2.44   2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00
```

```
                                        STORM AREA =   18.38

 59 LS          SCS LOSS RATE
                     STRTL        1.60  INITIAL ABSTRACTION
                    CRVNBR       83.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 60 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG         .60  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          17 END-OF-PERIOD ORDINATES
            72.     247.     393.     393.     306.     183.     114.      74.      46.      29.
            18.      11.       7.       4.       3.       2.       1.

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

                     HYDROGRAPH AT STATION   SECT21

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.62, TOTAL EXCESS =    1.00

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    199.     13.00        (CFS)      53.         16.          6.          6.
                        (INCHES)     .840       1.003       1.003       1.003
                         (AC-FT)      26.         32.         32.         32.

                       CUMULATIVE AREA =     .59 SQ MI


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


           **************
           *            *
 61 KK     *     COMB3  *
           *            *
           **************
                         COMBINE SECT21-2 * RT4 * HYDROGRAPHS AT RAY/SO.PAC. RR INTERSECTION

 63 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                     HYDROGRAPH AT STATION    COMB3

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    363.     13.20        (CFS)     100.         30.         12.         12.
                        (INCHES)     .854       1.029       1.029       1.029
                         (AC-FT)      50.         60.         60.         60.

                       CUMULATIVE AREA =    1.09 SQ MI


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


           **************
           *            *
 64 KK     *       RT5  *
           *            *
           **************
                         ROUTE COMB3 HYDROGRAPH TO CHANDLER/SO.PAC. RR INTERSECTION

                HYDROGRAPH ROUTING DATA

 66 RK          KINEMATIC WAVE STREAM ROUTING
                         L       5500.  CHANNEL LENGTH
                         S       .0010  SLOPE
```

```
                N        .016  CHANNEL ROUGHNESS COEFFICIENT
               CA         .00  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD         .00  BOTTOM WIDTH OR DIAMETER
                Z       25.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                  ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                  (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                      PEAK                  CELERITY
                                             (MIN)     (FT)    (CFS)    (MIN)      (IN)      (FPS)

             3         .64      1.33      2.22    550.00    362.23    810.86      1.03      4.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=   59.817  EXCESS=     .000 OUTFLOW=   59.690 BASIN STORAGE=     .000 PERCENT ERROR=     .214

                                     INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             3         .64      1.33     12.00              359.26    804.00      1.03

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

                 HYDROGRAPH AT STATION      RT5

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                  6-HR      24-HR      72-HR     59.80-HR
   359.       13.40       (CFS)      99.        30.        12.         12.
                         (INCHES)    .845      1.026      1.026       1.026
                          (AC-FT)    49.        60.        60.         60.

                         CUMULATIVE AREA =    1.09 SQ MI


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


          **************
          *            *
 67 KK    *   SECT28   *        OUTLET 2
          *            *
          **************
                            CHANDLER
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 28 - OUTLET 2

            SUBBASIN RUNOFF DATA

 70 BA        SUBBASIN CHARACTERISTICS
                   TAREA         .30  SUBBASIN AREA

              PRECIPITATION DATA

 15 PH                                DEPTHS FOR   1-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
                .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                STORM AREA =   18.38

 71 LS        SCS LOSS RATE
                   STRTL        1.97  INITIAL ABSTRACTION
                  CRVNBR       85.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 72 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .58  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                          16 END-OF-PERIOD ORDINATES
            39.      136.      209.      201.      151.       88.       55.       34.       21.       13.
             8.        5.        3.        2.        1.        1.
```

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

                    HYDROGRAPH AT STATION   SECT28

  TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.82, TOTAL EXCESS =     .80

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR       24-HR       72-HR     59.80-HR
   71.      13.00      (CFS)      21.         6.          3.          3.
                     (INCHES)    .641        .797        .797        .797
                      (AC-FT)     10.        13.         13.         13.

                    CUMULATIVE AREA =     .30 SQ MI


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


          **************
          *            *
 73 KK    *     COMB4  *
          *            *
          **************
                         COMBINE SECT28-2 * RT5 HYDROGRAPHS AT CHANDLER/SO.PAC. RR INTERSECTION

 75 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                 ***

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

                    HYDROGRAPH AT STATION    COMB4

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR       24-HR       72-HR     59.80-HR
   410.     13.40      (CFS)     118.        36.         15.         15.
                     (INCHES)    .790        .976        .976        .976
                      (AC-FT)     59.        72.         72.         72.

                    CUMULATIVE AREA =    1.39 SQ MI


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


          **************
          *            *
 76 KK    *       RT6  *
          *            *
          **************
                         ROUTE COMB4 HYDROGRAPH TO SOUTHWEST LOOP/SO.PAC. RR INTERSECTION

            HYDROGRAPH ROUTING DATA

 78 RK          KINEMATIC WAVE STREAM ROUTING
                         L       3700.  CHANNEL LENGTH
                         S       .0010  SLOPE
                         N        .016  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .00  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD         .00  BOTTOM WIDTH OR DIAMETER
                         Z       25.00  SIDE SLOPE
                     DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
                                                                 ***
                                 COMPUTED KINEMATIC PARAMETERS
                                      VARIABLE TIME STEP
                                   (DT SHOWN IS A MINIMUM)
                ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

                    3        .64     1.33       2.06    528.57    408.66   816.61       .97       4.27
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=   72.384  EXCESS=     .000 OUTFLOW=   72.269 BASIN STORAGE=     .000 PERCENT ERROR=     .160

                                        INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                     3         .64      1.33      12.00              402.42    816.00       .98

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

                      HYDROGRAPH AT STATION      RT6

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    402.     13.60        (CFS)      118.        37.         15.         15.
                        (INCHES)     .789       .977        .977        .977
                         (AC-FT)      59.        72.         72.         72.

                      CUMULATIVE AREA =    1.39 SQ MI


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


          **************
          *            *
 79 KK    *   SECT32   *
          *            *
          **************
                            CHANDLER
                            COMPUTE RUNOFF HYDROGRAPH FOR SECTION 32

             SUBBASIN RUNOFF DATA

 82 BA         SUBBASIN CHARACTERISTICS
                    TAREA         .33  SUBBASIN AREA

               PRECIPITATION DATA

 15 PH                                 DEPTHS FOR   1-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
                 .71    1.39    2.44    2.66    2.81    3.11    3.33    3.70     .00     .00     .00     .00

                                                   STORM AREA =   18.38

 83 LS         SCS LOSS RATE
                    STRTL        1.50  INITIAL ABSTRACTION
                   CRVNBR       83.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

 84 UD         SCS DIMENSIONLESS UNITGRAPH
                     TLAG         .60  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            17 END-OF-PERIOD ORDINATES
             40.      138.      220.      220.      171.      103.       64.       41.       26.       16.
             10.        6.        4.        3.        2.        1.        0.

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

                      HYDROGRAPH AT STATION   SECT32

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.54, TOTAL EXCESS =    1.08

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     59.80-HR
    123.     13.00        (CFS)       32.        10.          4.          4.
                        (INCHES)     .912      1.078       1.078       1.078
                         (AC-FT)      16.        19.         19.         19.

                      CUMULATIVE AREA =     .33 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 85 KK    *   OUTLTC   *
          *            *
          **************
                          COMBINE RT6 * SECT32 * RT3 TO GIVE HYDOGRAPH AT OUTLET-C AT
                          SOUTHWEST LOOP/SO.PAC. RR INTERSECTION

 89 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          1  PRINT CONTROL
                      IPLOT          2  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         60  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .200  TIME INTERVAL IN HOURS

 88 HC          HYDROGRAPH COMBINATION
                      ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
*****************************************************************************************************************************
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HYDROGRAPH AT STATION OUTLTC
SUM OF 3 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		1500	76	199.	2		0600	151	1.	2		2100	226	0.
1		0012	2	0.	1		1512	77	175.	2		0612	152	1.	2		2112	227	0.
1		0024	3	0.	1		1524	78	155.	2		0624	153	1.	2		2124	228	0.
1		0036	4	0.	1		1536	79	139.	2		0636	154	1.	2		2136	229	0.
1		0048	5	0.	1		1548	80	125.	2		0648	155	1.	2		2148	230	0.
1		0100	6	0.	1		1600	81	114.	2		0700	156	0.	2		2200	231	0.
1		0112	7	0.	1		1612	82	104.	2		0712	157	0.	2		2212	232	0.
1		0124	8	0.	1		1624	83	95.	2		0724	158	0.	2		2224	233	0.
1		0136	9	0.	1		1636	84	86.	2		0736	159	0.	2		2236	234	0.
1		0148	10	0.	1		1648	85	79.	2		0748	160	0.	2		2248	235	0.
1		0200	11	0.	1		1700	86	73.	2		0800	161	0.	2		2300	236	0.
1		0212	12	0.	1		1712	87	68.	2		0812	162	0.	2		2312	237	0.
1		0224	13	0.	1		1724	88	63.	2		0824	163	0.	2		2324	238	0.
1		0236	14	0.	1		1736	89	60.	2		0836	164	0.	2		2336	239	0.
1		0248	15	0.	1		1748	90	56.	2		0848	165	0.	2		2348	240	0.
1		0300	16	0.	1		1800	91	53.	2		0900	166	0.	3		0000	241	0.
1		0312	17	0.	1		1812	92	51.	2		0912	167	0.	3		0012	242	0.
1		0324	18	0.	1		1824	93	49.	2		0924	168	0.	3		0024	243	0.
1		0336	19	0.	1		1836	94	48.	2		0936	169	0.	3		0036	244	0.
1		0348	20	0.	1		1848	95	47.	2		0948	170	0.	3		0048	245	0.
1		0400	21	0.	1		1900	96	47.	2		1000	171	0.	3		0100	246	0.
1		0412	22	0.	1		1912	97	46.	2		1012	172	0.	3		0112	247	0.
1		0424	23	0.	1		1924	98	46.	2		1024	173	0.	3		0124	248	0.
1		0436	24	0.	1		1936	99	47.	2		1036	174	0.	3		0136	249	0.
1		0448	25	0.	1		1948	100	47.	2		1048	175	0.	3		0148	250	0.
1		0500	26	0.	1		2000	101	47.	2		1100	176	0.	3		0200	251	0.
1		0512	27	0.	1		2012	102	47.	2		1112	177	0.	3		0212	252	0.
1		0524	28	0.	1		2024	103	47.	2		1124	178	0.	3		0224	253	0.
1		0536	29	0.	1		2036	104	47.	2		1136	179	0.	3		0236	254	0.
1		0548	30	0.	1		2048	105	47.	2		1148	180	0.	3		0248	255	0.
1		0600	31	0.	1		2100	106	46.	2		1200	181	0.	3		0300	256	0.
1		0612	32	0.	1		2112	107	46.	2		1212	182	0.	3		0312	257	0.
1		0624	33	0.	1		2124	108	45.	2		1224	183	0.	3		0324	258	0.
1		0636	34	0.	1		2136	109	44.	2		1236	184	0.	3		0336	259	0.
1		0648	35	0.	1		2148	110	44.	2		1248	185	0.	3		0348	260	0.
1		0700	36	0.	1		2200	111	43.	2		1300	186	0.	3		0400	261	0.
1		0712	37	0.	1		2212	112	42.	2		1312	187	0.	3		0412	262	0.
1		0724	38	0.	1		2224	113	41.	2		1324	188	0.	3		0424	263	0.
1		0736	39	0.	1		2236	114	41.	2		1336	189	0.	3		0436	264	0.
1		0748	40	0.	1		2248	115	40.	2		1348	190	0.	3		0448	265	0.
1		0800	41	0.	1		2300	116	39.	2		1400	191	0.	3		0500	266	0.
1		0812	42	0.	1		2312	117	39.	2		1412	192	0.	3		0512	267	0.
1		0824	43	0.	1		2324	118	38.	2		1424	193	0.	3		0524	268	0.

1	0836	44	0.	*	1	2336	119	38.	*	2	1436	194	0.	*	3	0536	269	0.
1	0848	45	0.	*	1	2348	120	37.	*	2	1448	195	0.	*	3	0548	270	0.
1	0900	46	0.	*	2	0000	121	36.	*	2	1500	196	0.	*	3	0600	271	0.
1	0912	47	0.	*	2	0012	122	36.	*	2	1512	197	0.	*	3	0612	272	0.
1	0924	48	0.	*	2	0024	123	35.	*	2	1524	198	0.	*	3	0624	273	0.
1	0936	49	0.	*	2	0036	124	33.	*	2	1536	199	0.	*	3	0636	274	0.
1	0948	50	0.	*	2	0048	125	31.	*	2	1548	200	0.	*	3	0648	275	0.
1	1000	51	0.	*	2	0100	126	28.	*	2	1600	201	0.	*	3	0700	276	0.
1	1012	52	0.	*	2	0112	127	26.	*	2	1612	202	0.	*	3	0712	277	0.
1	1024	53	0.	*	2	0124	128	23.	*	2	1624	203	0.	*	3	0724	278	0.
1	1036	54	0.	*	2	0136	129	21.	*	2	1636	204	0.	*	3	0736	279	0.
1	1048	55	0.	*	2	0148	130	18.	*	2	1648	205	0.	*	3	0748	280	0.
1	1100	56	0.	*	2	0200	131	15.	*	2	1700	206	0.	*	3	0800	281	0.
1	1112	57	0.	*	2	0212	132	13.	*	2	1712	207	0.	*	3	0812	282	0.
1	1124	58	0.	*	2	0224	133	11.	*	2	1724	208	0.	*	3	0824	283	0.
1	1136	59	0.	*	2	0236	134	10.	*	2	1736	209	0.	*	3	0836	284	0.
1	1148	60	0.	*	2	0248	135	9.	*	2	1748	210	0.	*	3	0848	285	0.
1	1200	61	0.	*	2	0300	136	8.	*	2	1800	211	0.	*	3	0900	286	0.
1	1212	62	12.	*	2	0312	137	7.	*	2	1812	212	0.	*	3	0912	287	0.
1	1224	63	49.	*	2	0324	138	6.	*	2	1824	213	0.	*	3	0924	288	0.
1	1236	64	96.	*	2	0336	139	5.	*	2	1836	214	0.	*	3	0936	289	0.
1	1248	65	133.	*	2	0348	140	4.	*	2	1848	215	0.	*	3	0948	290	0.
1	1300	66	421.	*	2	0400	141	4.	*	2	1900	216	0.	*	3	1000	291	0.
1	1312	67	540.	*	2	0412	142	3.	*	2	1912	217	0.	*	3	1012	292	0.
1	1324	68	593.	*	2	0424	143	3.	*	2	1924	218	0.	*	3	1024	293	0.
1	1336	69	651.	*	2	0436	144	2.	*	2	1936	219	0.	*	3	1036	294	0.
1	1348	70	576.	*	2	0448	145	2.	*	2	1948	220	0.	*	3	1048	295	0.
1	1400	71	479.	*	2	0500	146	2.	*	2	2000	221	0.	*	3	1100	296	0.
1	1412	72	392.	*	2	0512	147	1.	*	2	2012	222	0.	*	3	1112	297	0.
1	1424	73	323.	*	2	0524	148	1.	*	2	2024	223	0.	*	3	1124	298	0.
1	1436	74	270.	*	2	0536	149	1.	*	2	2036	224	0.	*	3	1136	299	0.
1	1448	75	230.	*	2	0548	150	1.	*	2	2048	225	0.	*	3	1148	300	0.
				*					*					*				

****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	59.80-HR
651.	13.60	(CFS)	215.	68.	27.	27.
		(INCHES)	.730	.916	.916	.916
		(AC-FT)	107.	134.	134.	134.

CUMULATIVE AREA = 2.74 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	SECT16	4.	15.00	3.	1.	0.	.23		
ROUTED TO	RT1	4.	16.00	3.	1.	0.	.23		
HYDROGRAPH AT	SECT20	233.	12.40	38.	11.	4.	.29		
2 COMBINED AT	COMB1	233.	12.40	40.	12.	5.	.52		
ROUTED TO	RT2	230.	12.80	39.	12.	5.	.52		
HYDROGRAPH AT	SECT29	90.	13.00	29.	9.	4.	.50		
2 COMBINED AT	COMB2	304.	12.80	67.	21.	9.	1.02		
ROUTED TO	RT3	294.	13.20	68.	21.	9.	1.02		
HYDROGRAPH AT	SECT16	198.	12.80	48.	14.	6.	.50		
ROUTED TO	RT4	197.	13.20	48.	14.	6.	.50		
HYDROGRAPH AT	SECT21	199.	13.00	53.	16.	6.	.59		
2 COMBINED AT	COMB3	363.	13.20	100.	30.	12.	1.09		
ROUTED TO	RT5	359.	13.40	99.	30.	12.	1.09		
HYDROGRAPH AT	SECT28	71.	13.00	21.	6.	3.	.30		
2 COMBINED AT	COMB4	410.	13.40	118.	36.	15.	1.39		
ROUTED TO	RT6	402.	13.60	118.	37.	15.	1.39		
HYDROGRAPH AT	SECT32	123.	13.00	32.	10.	4.	.33		
3 COMBINED AT	OUTLTC	651.	13.60	215.	68.	27.	2.74		

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RT1	3	1.55	4.12	962.87	.19	12.00	4.12	960.00	.19
CONTINUITY SUMMARY (AC-FT) - INFLOW=		2.376	EXCESS=	.000	OUTFLOW=	2.375	BASIN STORAGE=	.000	PERCENT ERROR= .027
RT2	3	1.98	230.93	767.25	.86	12.00	229.69	768.00	.85
CONTINUITY SUMMARY (AC-FT) - INFLOW=		23.881	EXCESS=	.000	OUTFLOW=	23.812	BASIN STORAGE=	.000	PERCENT ERROR= .289
RT3	3	2.17	301.79	782.55	.77	12.00	294.07	792.00	.78
CONTINUITY SUMMARY (AC-FT) - INFLOW=		42.042	EXCESS=	.000	OUTFLOW=	41.914	BASIN STORAGE=	.000	PERCENT ERROR= .304
RT4	3	2.53	196.95	791.76	1.06	12.00	196.64	792.00	1.06
CONTINUITY SUMMARY (AC-FT) - INFLOW=		28.345	EXCESS=	.000	OUTFLOW=	28.259	BASIN STORAGE=	.000	PERCENT ERROR= .303
RT5	3	2.22	362.23	810.86	1.03	12.00	359.26	804.00	1.03
CONTINUITY SUMMARY (AC-FT) - INFLOW=		59.817	EXCESS=	.000	OUTFLOW=	59.690	BASIN STORAGE=	.000	PERCENT ERROR= .214
RT6	3	2.06	408.66	816.61	.97	12.00	402.42	816.00	.98
CONTINUITY SUMMARY (AC-FT) - INFLOW=		72.384	EXCESS=	.000	OUTFLOW=	72.269	BASIN STORAGE=	.000	PERCENT ERROR= .160

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

Volume II

APPENDIX E

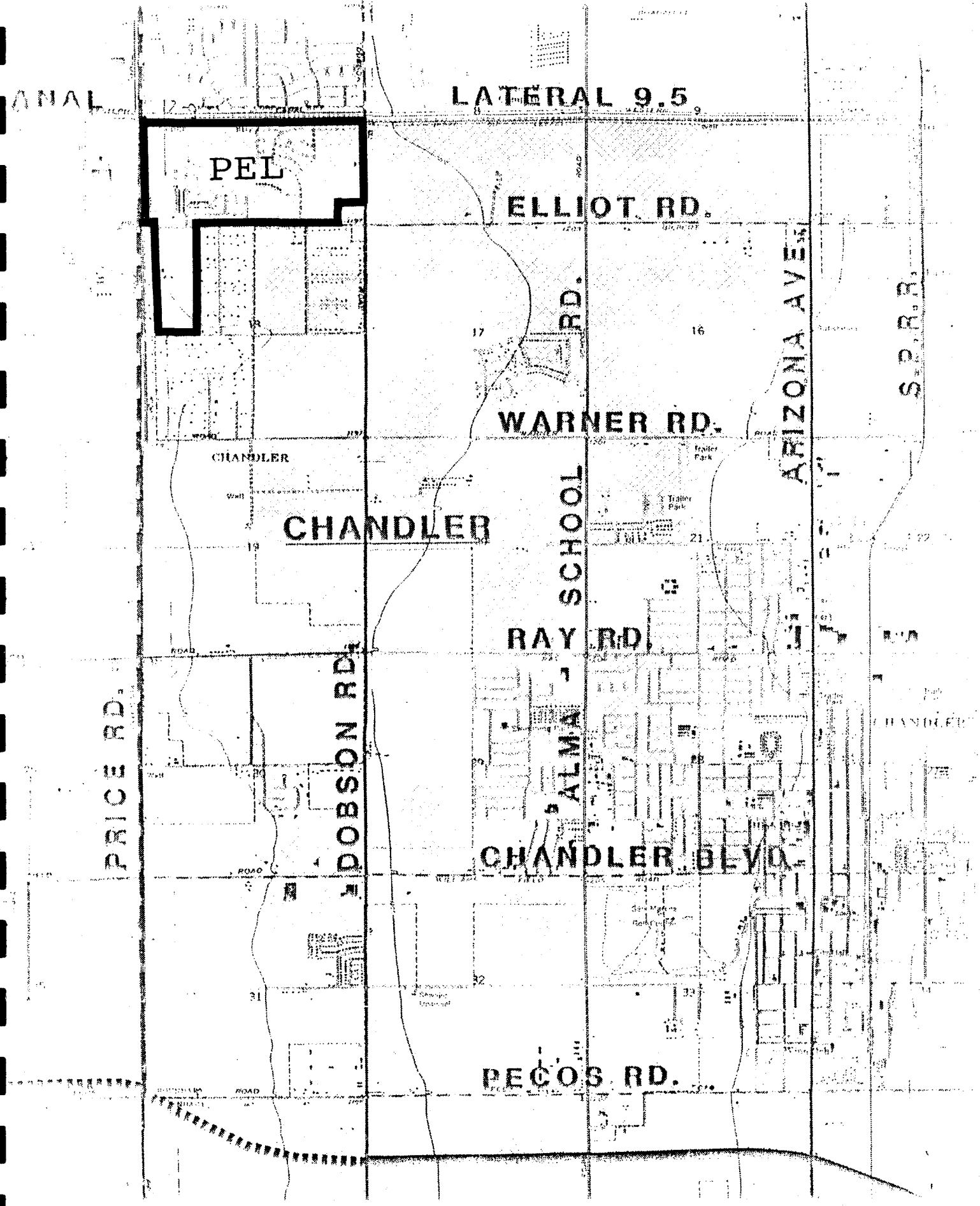
HYDROLOGY STUDY REPORT

Subbasin Models and Calibration Runs

1. Area East of Price Road
2. Area West of Price Road

Appendix E-1 - Area East of Price Road

Opt7
Opt8
Opt9
Opt15
Opt16
Opt17
Opt18
Opt19
Opt20
Opt21
Opt28
Opt29 (A&B)
Opt30A
Opt30B
Opt31A
Opt31B
Opt31C
Opt33/Opt33B
Opt456


ANAL
LATERAL 9.5
PEL
ELLIOT RD.
ARIZONA AVE.
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL RD.
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT7

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 7   <PEL.DAT>
  2           ID        Flows to Price and Elliot
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - May 30,1989   HDR - PHX
  5           IT      5                     300
  6           IN     30
  7           IO      3       0       0

  8           KK    PEL1
  9           KM        Runoff from Silvergate and Knoell (East)
 10           PH      1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 11           BA   0.088
 12           LS    2.39    86.7
 13           UD    0.47

 14           KK    PEL2
 15           KM        Runoff from Knoell Dev. and Jordan Elem. School
 16           BA   0.063
 17           LS    2.27    87.0
 18           UD    0.36

 19           KK   CPEL2
 20           KM        Combine flows in retention basins at Jordan School
 21           HC      2

 22           KK   RPEL2
 23           KM        Route flows to South to Elliot Road
 24           RK    1000  0.0010   0.030            TRAP   100.0    10.0

 25           KK    PEL3
 26           KM        Runoff from So Silvergate Dev.
 27           BA   0.069
 28           LS    2.34    87.4
 29           UD    0.36

 30           KK   CPEL3
 31           KM        Combine flows at Elliot in retention basins
 32           HC      2

 33           KK   RPEL3
 34           KM        Route CPEL3 flows West along Elliot Road in retentions basins
 35           RK    1200  0.0008   0.030            TRAP   100.0    10.0

 36           KK    PEL4
 37           KM        Runoff from S. Carriage Ln. #8 and E. #6
 38           BA   0.056
 39           LS    2.29      88
 40           UD    0.42

 41           KK   CPEL4
 42           KM        Combine flows in retention basins along Elliot Road
 43           HC      2
```

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

  44          KK   RPEL4
  45          KM        Route CPEL4 flows west in retention basins along Elliot Road
  46          RK    1200  0.0008   0.030            TRAP   100.0    10.0

  47          KK    PEL5
  48          KM        Runoff from Carriage Ln. #6 and #8(sw)
  49          BA   0.041
  50          LS    2.29      88
  51          UD    0.37

  52          KK   CPEL5
  53          KM        Combine hydrographs at Elliot Road Retention Basins
  54          HC       2

  55          KK    PEL6
  56          KM        Runoff from W. Carriage Ln. #6&7 and Ag Spanos
  57          BA   0.075
  58          LS    1.53    88.9
  59          UD    0.40

  60          KK   CPEL6
  61          KM        Combine flows in Elliot Road at Price Road
  62          HC       2

  63          KK    PEL7
  64          KM        Runoff from No  Carriage Ln. # 7,8,9
  65          BA   0.077
  66          LS    2.37      87
  67          UD    0.35

  68          KK   RPEL7
  69          KM        Route PEL7 flows to Elliot Road along Price
  70          RK    3400  0.0006   0.016            TRAP     0.0    25.0

  71          KK   CPEL7
  72          KM        Combine hydrographs from Elliot Road and Price Roads
  73          HC       2

  74          KK  R2PEL7
  75          KM        Route combined flows to SW corner of PEL8
  76          RK     900  0.0010   0.016            TRAP    10.0     3.0

  77          KK    PEL8
  78          KM        Runoff from Marlborough Estates
  79          BA    0.03
  80          LS    2.40      89
  81          UD     .30

  82          KK   CPEL8
  83          KM        Combine PEL8 with Elliot Rd. and Price Rd. hydrographs
  84          HC       2
```

BDY OPT7

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

  85          KK   RPEL8
  86          KM        Route combined hydrographs to proposed retention basin "E"
  87          RK    1500   .0010    .016            TRAP      10     3.0

  88          KK    PEL9
  89          KM        Runoff from undeveloped parcels and Chandler Care Center (s.of Warner)
  90          BA    0.06
  91          LS    0.95      90      22
  92          UD     .38

  93          KK   CPEL9
  94          KM        Combine all hydrographs PEL1 thru PEL9
  95          HC       2
  96          KO       1       2

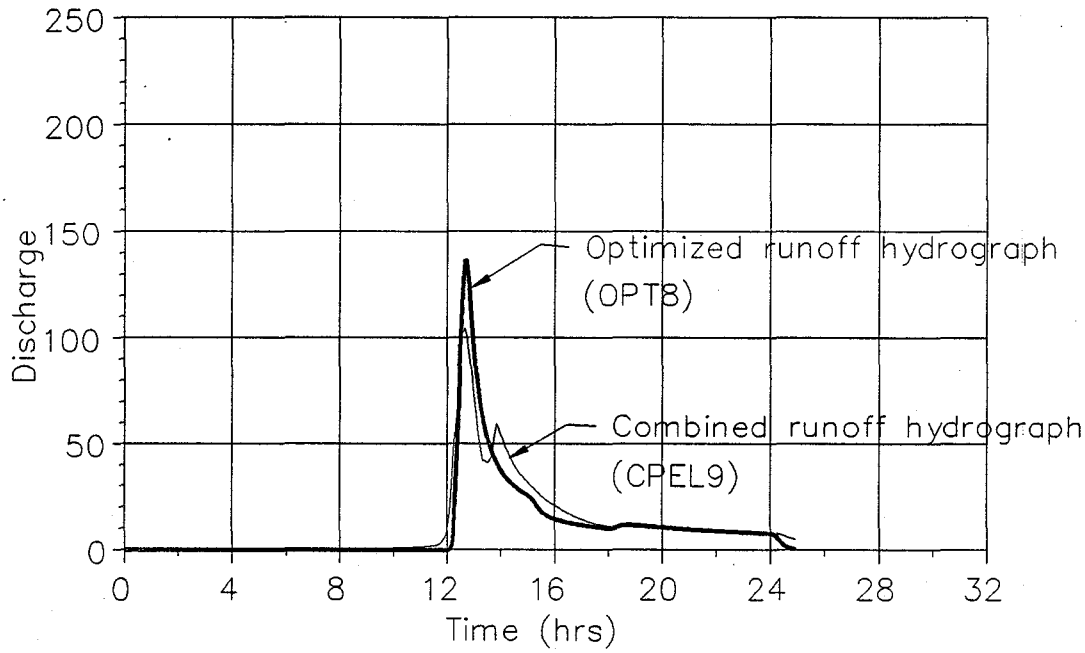
  97          KK    OPT8
  98          KM        Optimized single basin for section 7
  99          BA    0.56
 100          LS    2.20    89.7
 101          UD    0.32
 102          KO       1       2
 103          ZZ
```

BDY A OPT7 D

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

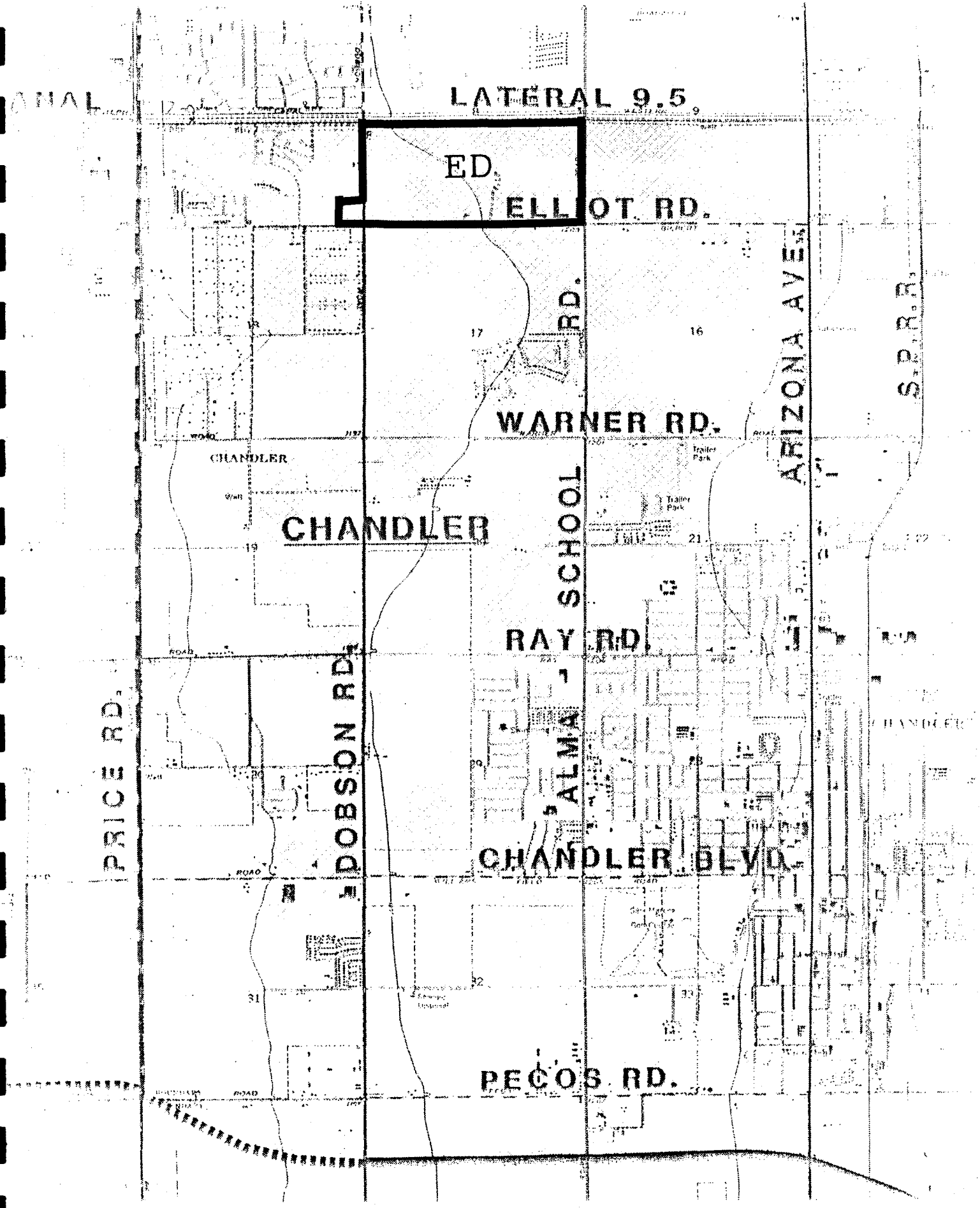
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	PEL1	9.	13.00	3.	1.	1.	.09		
HYDROGRAPH AT	PEL2	10.	12.75	3.	1.	1.	.06		
2 COMBINED AT	CPEL2	18.	12.83	6.	2.	2.	.15		
ROUTED TO	RPEL2	18.	13.17	6.	2.	2.	.15		
HYDROGRAPH AT	PEL3	10.	12.83	3.	1.	1.	.07		
2 COMBINED AT	CPEL3	26.	13.08	9.	3.	3.	.22		
ROUTED TO	RPEL3	26.	13.42	9.	3.	3.	.22		
HYDROGRAPH AT	PEL4	9.	12.83	3.	1.	1.	.06		
2 COMBINED AT	CPEL4	31.	13.33	11.	4.	4.	.28		
ROUTED TO	RPEL4	31.	13.67	11.	4.	4.	.28		
HYDROGRAPH AT	PEL5	7.	12.83	2.	1.	1.	.04		
2 COMBINED AT	CPEL5	34.	13.67	13.	5.	4.	.32		
HYDROGRAPH AT	PEL6	43.	12.58	9.	3.	2.	.08		
2 COMBINED AT	CPEL6	49.	12.67	21.	7.	7.	.39		
HYDROGRAPH AT	PEL7	10.	12.83	3.	1.	1.	.08		
ROUTED TO	RPEL7	10.	13.50	3.	1.	1.	.08		
2 COMBINED AT	CPEL7	52.	13.67	24.	8.	8.	.47		
ROUTED TO	R2PEL7	51.	13.75	24.	8.	8.	.47		
HYDROGRAPH AT	PEL8	4.	12.75	1.	0.	0.	.03		
2 COMBINED AT	CPEL8	53.	13.75	25.	8.	8.	.50		
ROUTED TO	RPEL8	52.	13.83	25.	8.	8.	.50		
HYDROGRAPH AT	PEL9	70.	12.50	12.	4.	3.	.06		
2 COMBINED AT	CPEL9	104.	12.67	36.	12.	12.	.56		
HYDROGRAPH AT	OPT8	137.	12.67	34.	11.	11.	.56		

BDY
OPT7



Runoff Hydrographs for Drainage Subarea PEL

BDY
OPT7


LATERAL 9.5
ED.
ELLIOT RD.
RD.
ARIZONA AVE
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT8

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 8   <ELD.DAT>
  2           ID        Flows to Elliot and Dobson Road
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - May 30,1989   HDR - PHX
  5           IO       3       0       0
  6           IT       5                     300
              *DIAGRAM

  7           KK    ELD1
  8           KM        Runoff from Parkwood IV and Lakeside Villas
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.096
 11           LS    2.29    91.6
 12           UD    0.33

 13           KK   RELD1
 14           KM        Route ELD1 outflow to ELD2 along Lateral 9.5 to West
 15           RK    2100  0.0007   0.030            TRAP   100.0    10.0

 16           KK    ELD2
 17           KM        Runoff from Woodglen and Hendricks Jr. High School
 18           BA    0.07
 19           LS    1.50    78.0
 20           UD    0.56

 21           KK   CELD2
 22           KM        Combine flows in retention basins along Lateral 9.5
 23           HC       2

 24           KK   RELD2
 25           KM        Route flows to West along Lateral 9.5 to West
 26           RK    1600  0.0006   0.030            TRAP   100.0    10.0

 27           KK  R2ELDS
 28           KM        Route RELD2 flows south along Dobson
 29           RK    1000  0.0010   0.016            TRAP     0.0    25.0

 30           KK    ELD3
 31           KM        Runoff from Woodglen 4
 32           BA   0.098
 33           LS    2.83      84
 34           UD    0.53

 35           KK   CELD3
 36           KM        Combine flows in Dobson Road at ELD3
 37           HC       2

 38           KK   RELD3
 39           KM        Route CELD3 flows south along Dobson Road
 40           RK    1500  0.0010   0.016            TRAP     0.0    25.0
```

OPT8

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

  41          KK    ELD4
  42          KM        Runoff from Elliot Place and W. Parkwood Estates
  43          BA   0.081
  44          LS    2.47    90.5
  45          UD    0.35

  46          KK   RELD4
  47          KM        Route ELD4 flows west along Elliot Road retention basins
  48          RK    1400  0.0014    0.03            TRAP    75.0    10.0

  49          KK    ELD5
  50          KM        Runoff from Parkwood Estates (west) and E. Woodglen 5
  51          BA    0.04
  52          LS    2.84      87
  53          UD    0.40

  54          KK   CELD5
  55          KM        Combine hydrographs at retention basin at Elliot
  56          HC       2

  57          KK   RELD5
  58          KM        Route flows along Elliot Road retention basins
  59          RK    1000  0.0013   0.030            TRAP   100.0    10.0

  60          KK   RELD5
  61          KM        Route RELD5 flows along Elliot Road to EAS6
  62          RK    1000  0.0013   0.016            TRAP     0.0    25.0

  63          KK    ELD6
  64          KM        Runoff from Woodglen 5 (west),Shadow Run and Undev at Dob. and Elliot
  65          BA   0.103
  66          LS    2.35    86.0
  67          UD    0.37

  68          KK   CELD7
  69          KM        Combine flows in Elliot at Dobson Road
  70          HC       2

  71        — KK  C2ELD7
  72          KM        Combine hydrographs at intersection of Elliot Road and Dobson Road
  73          KO       1       2
  74          HC       2

  75          KK   RELD7
  76          KM        Route combined flows from Dobson to Price
  77          KO       1       2
  78          RK    5280  0.0009   0.016            TRAP     0.0    25.0

  79          KK    OPT8
  80        — KM        Optimized single basin for section 15
  81          BA    0.49
  82          LS    1.90    75.0
  83          UD    1.66
```

OPT8

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

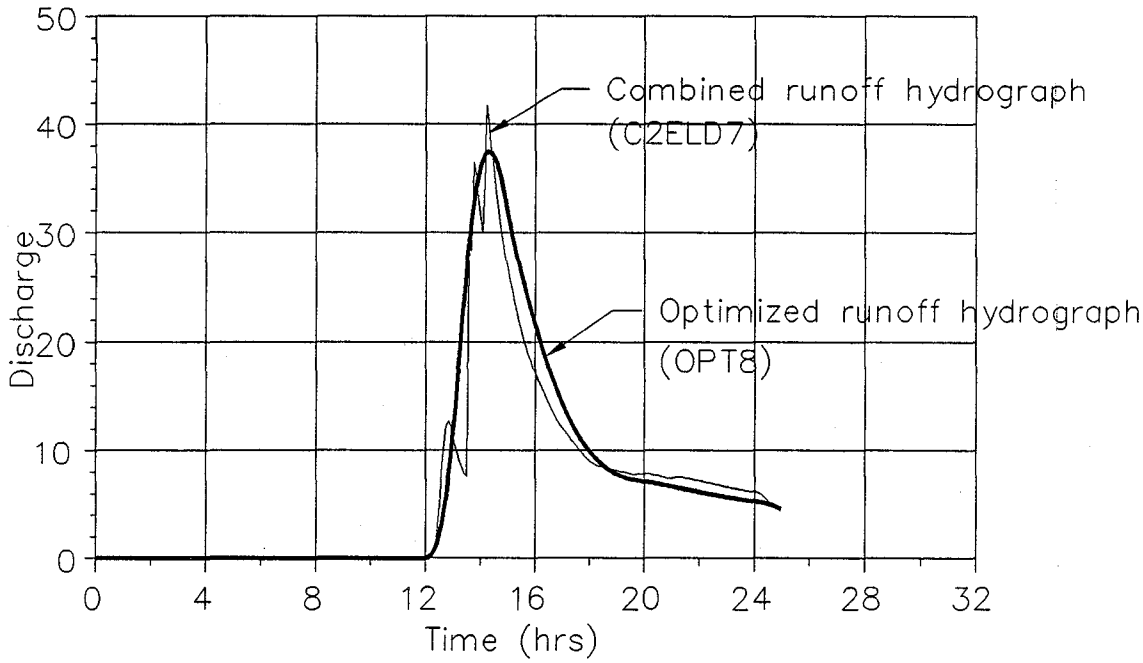
  84          KK   ROPT8
  85          KM        Route optimized single basin to Dobson Rds.
  86          KO       1       2
  87          RK    5280  0.0011   0.016            TRAP     0.0    25.0
  88          ZZ
```

OPT8

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

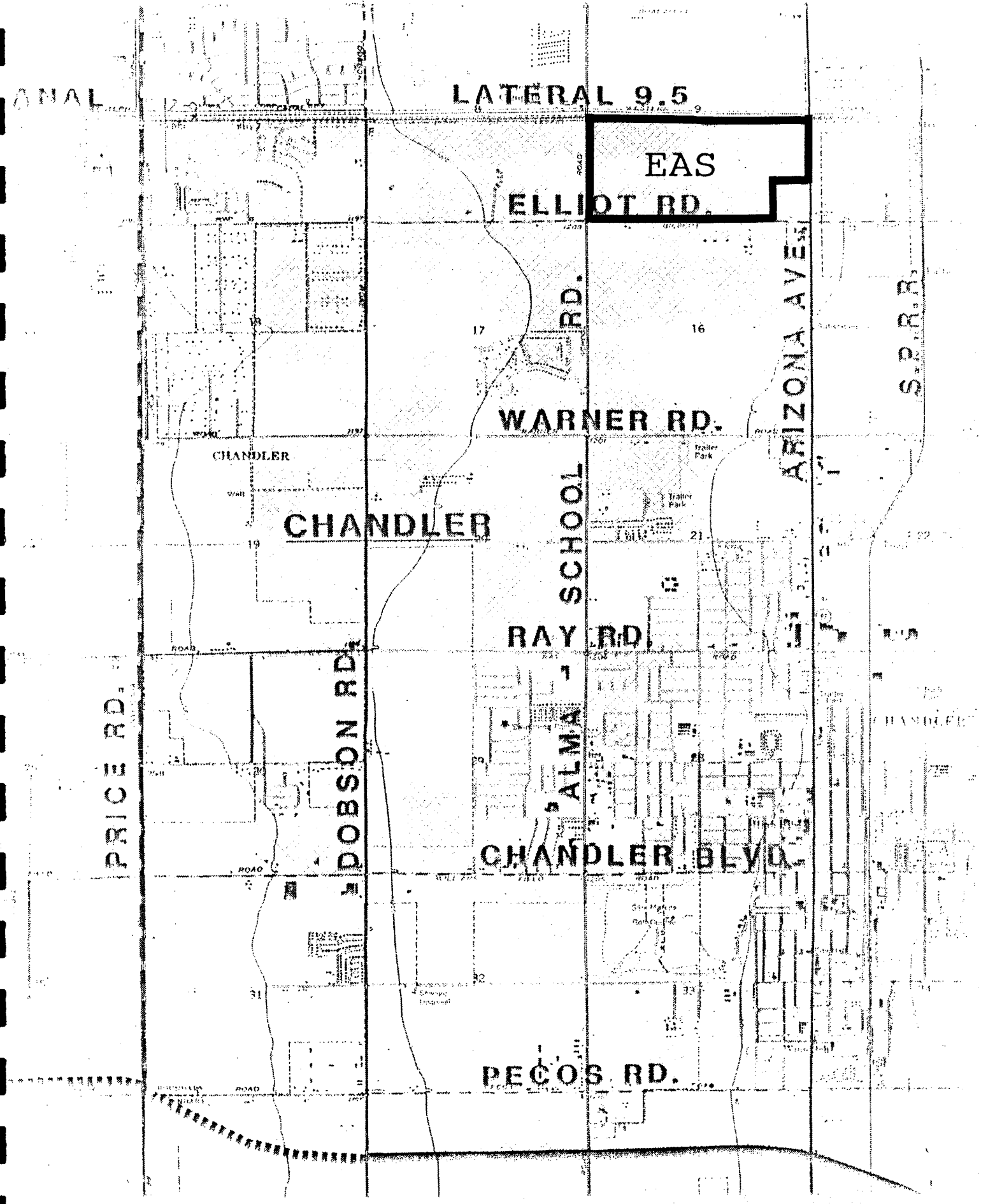
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	ELD1	22.	12.75	6.	2.	2.	.10		
ROUTED TO	RELD1	21.	13.42	5.	2.	2.	.10		
HYDROGRAPH AT	ELD2	21.	12.83	5.	2.	2.	.07		
2 COMBINED AT	CELD2	32.	13.42	10.	3.	3.	.17		
ROUTED TO	RELD2	30.	13.92	10.	3.	3.	.17		
ROUTED TO	R2ELDS	28.	14.08	10.	3.	3.	.17		
HYDROGRAPH AT	ELD3	2.	14.67	1.	1.	0.	.10		
2 COMBINED AT	CELD3	30.	14.08	11.	4.	4.	.26		
ROUTED TO	RELD3	29.	14.25	11.	4.	4.	.26		
HYDROGRAPH AT	ELD4	10.	12.83	3.	1.	1.	.08		
ROUTED TO	RELD4	9.	13.25	3.	1.	1.	.08		
HYDROGRAPH AT	ELD5	1.	14.33	1.	0.	0.	.04		
2 COMBINED AT	CELD5	10.	13.25	4.	1.	1.	.12		
ROUTED TO	RELD5	10.	13.58	4.	1.	1.	.12		
ROUTED TO	RELD5	9.	13.83	4.	1.	1.	.12		
HYDROGRAPH AT	ELD6	13.	12.83	4.	1.	1.	.10		
2 COMBINED AT	CELD7	16.	13.75	8.	3.	3.	.22		
2 COMBINED AT	C2ELD7	42.	14.25	18.	6.	6.	.49		
ROUTED TO	RELD7	41.	14.92	18.	6.	6.	.49		
HYDROGRAPH AT	OPT8	37.	14.33	21.	7.	7.	.49		
ROUTED TO	ROPT8	37.	14.92	21.	7.	6.	.49		

OPT8



Runoff Hydrographs for Drainage Subarea ED

OPT8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LATERAL 9.5
EAS
ELLIOT RD.
ARIZONA AVE
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL RD.
RAY RD.
ALMA
DOBSON RD.
PRICE RD.
CHANDLER BLVD.
PECOS RD.

OPT9

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 9   <EAS.DAT>
  2           ID        Flows to Elliot and Alma School
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - May 30,1989   HDR - PHX
  5           IO       3       0 .      0
              *DIAGRAM
  6           IT       5                     300

  7           KK    EAS1
  8           KM        Runoff from Dobson Business Park
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA    0.05
 11           LS    2.52    93.3
 12           UD    0.30

 13           KK   REAS1
 14           KM        Route ESA1 outflow to ESA2 along Lateral 9.5 to West
 15           RK    1700  0.0012   0.030            TRAP   100.0    10.0

 16           KK    EAS2
 17           KM        Runoff from No. portion of New Horizons Development
 18           BA    0.06
 19           LS    2.37      87
 20           UD    0.38

 21           KK   CEAS2
 22           KM        Combine flows in retention basins along Lateral 9.5
 23           HC       2

 24           KK   REAS2
 25           KM        Route flows to West along Lateral 9.5 to West
 26           RK    1750  0.0011   0.030            TRAP   100.0    10.0

 27           KK    EAS3
 28           KM        Runoff from No portion of Mission Valley
 29           BA   0.058
 30           LS    2.40      88
 31           UD    0.29

 32           KK   REAS3
 33           KM        Route EAS3 flows to retention basins at Lateral 9.5
 34           RK     900  0.0011   0.016            TRAP     0.0    50.0

 35           KK    EAS4
 36           KM        Runoff from Mission Valley and Sunrise developments
 37           BA   0.036
 38           LS    2.40      88
 39           UD    0.37

 40           KK   CEAS4  .
 41           KM        Combine flows in retention basins along Lateral 9.5 @ Alma School
 42           HC       2
```

OPT9

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

  43          KK    EAS5
  44          KM        Runoff from Sunrise Townhomes
  45          BA    0.04
  46          LS    3.00      90
  47          UD    0.30

  48          KK   CEAS5
  49          KM        Combine hydrographs at Lateral 9.5
  50          HC       3

  51          KK   REAS5
  52          KM        Route flows from Lateral 9.5 to Elliot along Alma School
  53          RK    2640  0.0007   0.016            TRAP     0.0    25.0

  54          KK    EAS6
  55          KM        Runoff from So portion of New Horizons
  56          BA   0.064
  57          LS    2.37      87
  58          UD    0.42

  59          KK   REAS6
  60          KM        Route EAS6 flows along retention basin to EAS7
  61          RK    1600  0.0008   0.030            TRAP   100.0    10.0

  62          KK    EAS7
  63          KM        Runoff from So. Mission Valley I
  64          BA   0.057
  65          LS    2.50    86.7
  66          UD    0.38

  67          KK   CEAS7
  68          KM        Combine flows in Retention basins along Elliot
  69          HC       2

  70          KK   REAS7
  71          KM        Route flows from EAS7 to Alma School along retention basins
  72          RK    1100  0.0008   0.030            TRAP   100.0    10.0

  73          KK    EAS8
  74          KM        Runoff from Sunridge 4 and Paseo Do Oro developments
  75          BA   0.075
  76          LS    2.65    89.4
  77          UD    0.34

  78          KK   CEAS8
  79          KM        Combine hydrographs from Elliot Road at Alma School
  80          HC       2

  81          KK  C2EAS8
  82          KM        Combine flows (total) @ Elliot and Alma School Roads
  83          KO       1       2
  84          HC       2
```

OPT9

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

  85          KK   REAS8
  86          KM        Route combined flows to Dobson and Elliot
  87          KO       1       2
  88          RK    5280  0.0011   0.016            TRAP     0.0    25.0

  89          KK    OPT8
  90          KM        Optimized single basin for section 15
  91          BA    0.44
  92          LS    2.11    75.8
  93          UD    1.35

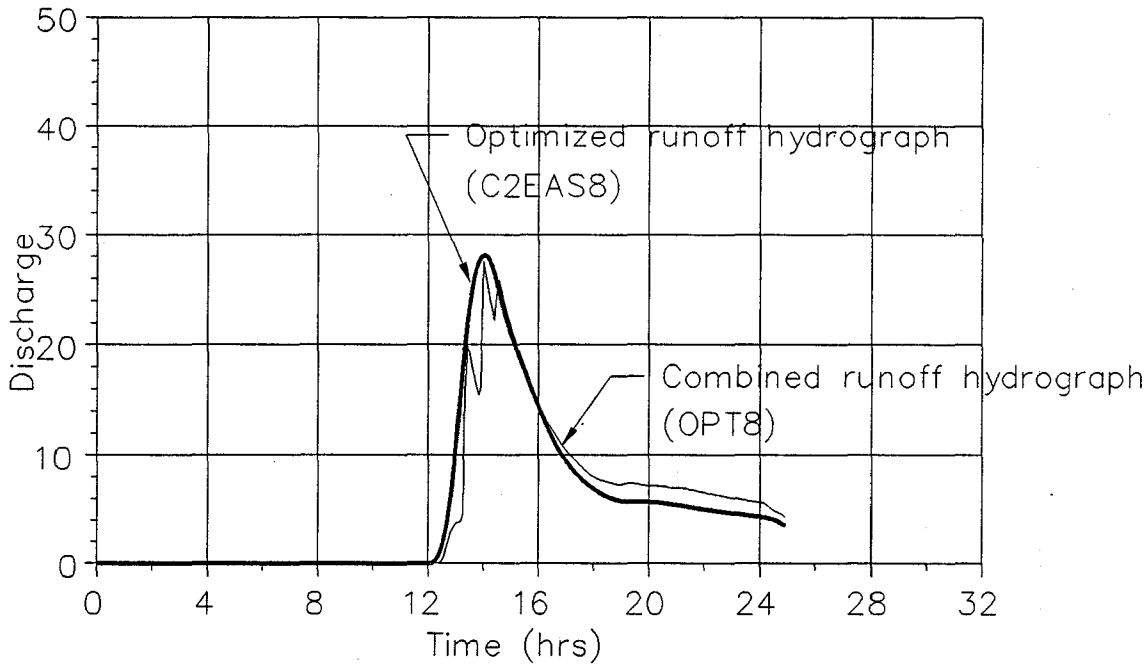
  94          KK   ROPT8
  95          KM        Route optimized single basin to Dobson Rds.
  96          KO       1       2
  97          RK    5280  0.0011   0.016            TRAP     0.0    25.0
  98          ZZ
```

OPT9

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

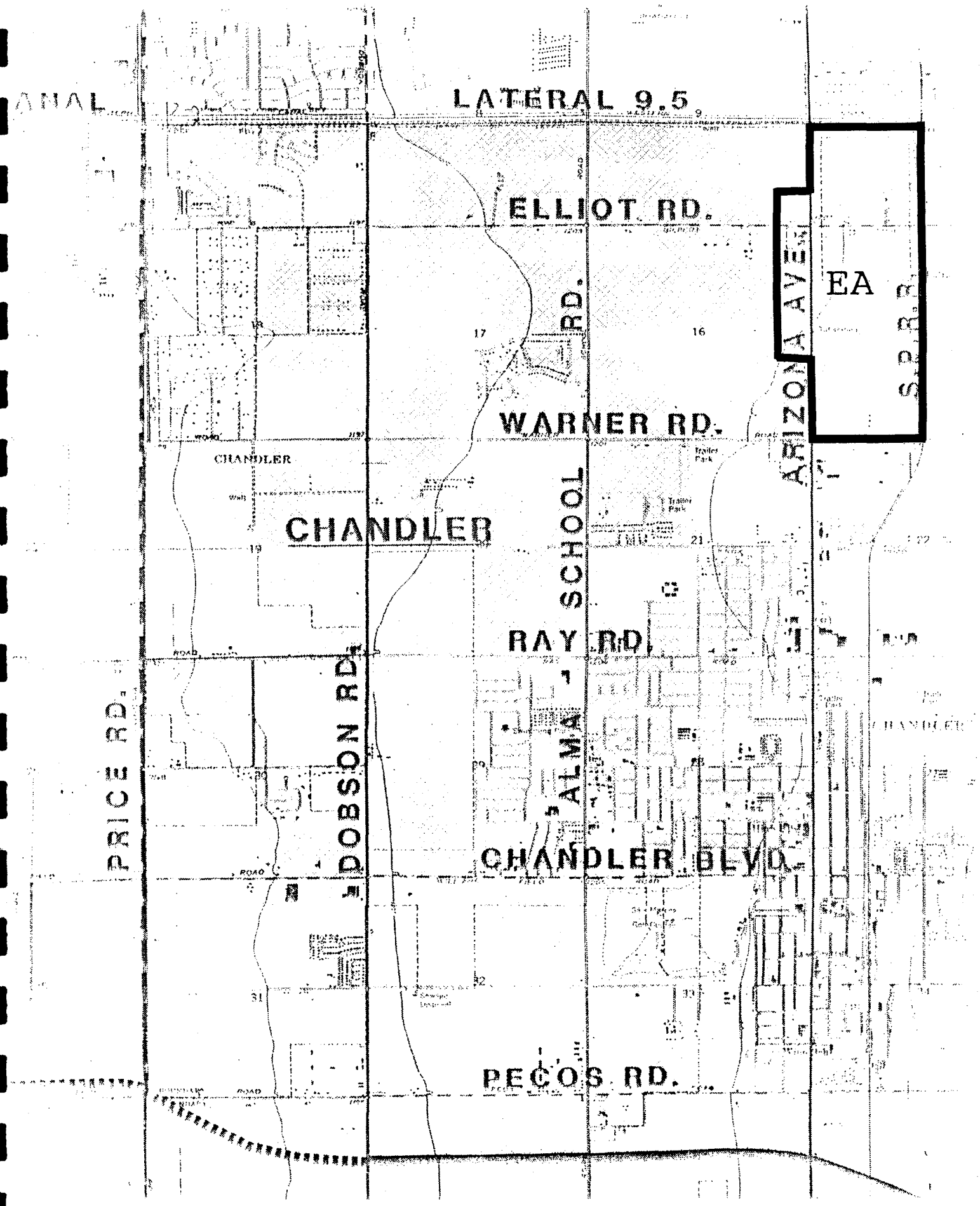
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	EAS1	7.	12.83	2.	1.	1.	.05		
ROUTED TO	REAS1	7.	13.50	2.	1.	1.	.05		
HYDROGRAPH AT	EAS2	7.	12.83	2.	1.	1.	.06		
2 COMBINED AT	CEAS2	11.	13.50	5.	2.	2.	.11		
ROUTED TO	REAS2	11.	14.08	4.	2.	1.	.11		
HYDROGRAPH AT	EAS3	8.	12.75	2.	1.	1.	.06		
ROUTED TO	REAS3	8.	12.92	2.	1.	1.	.06		
HYDROGRAPH AT	EAS4	4.	12.83	1.	1.	0.	.04		
2 COMBINED AT	CEAS4	12.	12.92	4.	1.	1.	.09		
HYDROGRAPH AT	EAS5	1.	15.08	0.	0.	0.	.04		
3 COMBINED AT	CEAS5	16.	14.08	8.	3.	3.	.24		
ROUTED TO	REAS5	16.	14.58	8.	3.	3.	.24		
HYDROGRAPH AT	EAS6	7.	12.92	3.	1.	1.	.06		
ROUTED TO	REAS6	7.	13.58	2.	1.	1.	.06		
HYDROGRAPH AT	EAS7	4.	12.92	2.	1.	1.	.06		
2 COMBINED AT	CEAS7	11.	13.58	4.	1.	1.	.12		
ROUTED TO	REAS7	10.	14.00	4.	1.	1.	.12		
HYDROGRAPH AT	EAS8	4.	13.25	2.	1.	1.	.08		
2 COMBINED AT	CEAS8	14.	14.00	6.	2.	2.	.20		
2 COMBINED AT	C2EAS8	28.	14.00	14.	5.	5.	.44		
ROUTED TO	REAS8	27.	14.67	14.	5.	5.	.44		
HYDROGRAPH AT	OPT8	28.	14.00	15.	5.	5.	.44		
ROUTED TO	ROPT8	28.	14.67	15.	5.	5.	.44		

OPT9



Runoff Hydrographs for Drainage Subarea EAS

OPT9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LATERAL 9.5
ELLIOT RD.
EA
ARIZONA AVE
S.P.R.R.
RD.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT 15

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 15   <ELA.DAT>
  2           ID        Flows to Elliot and Arizona Ave.
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - May 31,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IN      30
  7           IO       3       0       0

  8           KK    ELA1
  9           KM        Runoff from Commercial @ NE corner of Arizona Ave and Warner Road
 10           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 11           BA   0.075
 12           LS    3.00      92
 13           UD    0.51

 14           KK   RELA1
 15           KM        Route ELA1 outflow to ELA2
 16           RK     600  0.0008   0.016            TRAP     0.0    25.0

 17           KK    ELA2
 18           KM        Runoff from Agricultural land @ Palomino Dr. (B soil)
 19           BA    0.18
 20           LS    1.50      78
 21           UD    1.32

 22           KK   CELA2
 23           KM        Combine flows in  Az. Ave. @ Palomino Dr.
 24           HC       2

 25           KK    ELA3
 26           KM        Runoff from Agricultural land N. of  Palomino Dr. (C soil)
 27           BA   0.133
 28           LS    1.50      85
 29           UD    0.88

 30           KK   CELA3
 31           KM        Combine flows north of Palomino Dr. in Az. Ave.
 32           HC       2

 33           KK   RELA3
 34           KM        Route combined flows to Comstock Dr. (Industrial Area)
 35           RK    1700  0.0012   0.016            TRAP     0.0    25.0

 36           KK    ELA4
 37           KM        Runoff from Industrial Park @ Arizona Ave.
 38           BA    0.13
 39           LS    3.00   90.25
 40           UD   0.525
```

station OPT15

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

  41          KK   CELA4
  42          KM        Combine flows in Az. Ave. at Comstock Dr.
  43          HC       2

  44          KK   RELA4
  45          KM        Route combined flows to Elliot Ave at Az. Ave.
  46          RK    1000   0.001   0.016            TRAP     0.0    25.0

  47          KK    ELA5
  48          KM        Runoff from development on W. side of Az. Ave.
  49          BA    0.15
  50          LS    2.20    88.4
  51          UD    0.67

  52          KK   CELA5
  53          KM        Combine hydrographs at Elliot and Az. Ave.
  54          HC       2

  55          KK    ELA6
  56          KM        Runoff from Industrial Park @ SPRR and Western Canal (East)
  57          BA    0.10
  58          LS    3.00    89.2
  59          UD    0.41

  60          KK    ELA7
  61          KM        Runoff from Industrial Park @ SPRR and Western Canal (Central)
  62          BA    0.06
  63          LS    3.00      90
  64          UD    0.55

  65          KK   CEAL7
  66          KM        Combine flows in Colorado St. @ Elliot
  67          HC       2

  68          KK   RELA7
  69          KM        Route flows from Elliot to Ariz. Ave.
  70          RK    1700  0.0012   0.016            TRAP     0.0    25.0

  71          KK    ELA8
  72          KM        Runoff from Industrial Park @ SPRR and Western Canal (West)
  73          BA  0.0925
  74          LS    3.00    88.7
  75          UD    0.53

  76          KK   CELA8
  77          KM        Combine hydrographs from NE cnr of Elliot and Az. Ave.
  78          HC       2

  79          KK  C2ELA8
  80          KM        Combine flows (total) @ Elliot and Arizona Ave.
  81          KO       1       2
  82          HC       2
```

Station OPT 15

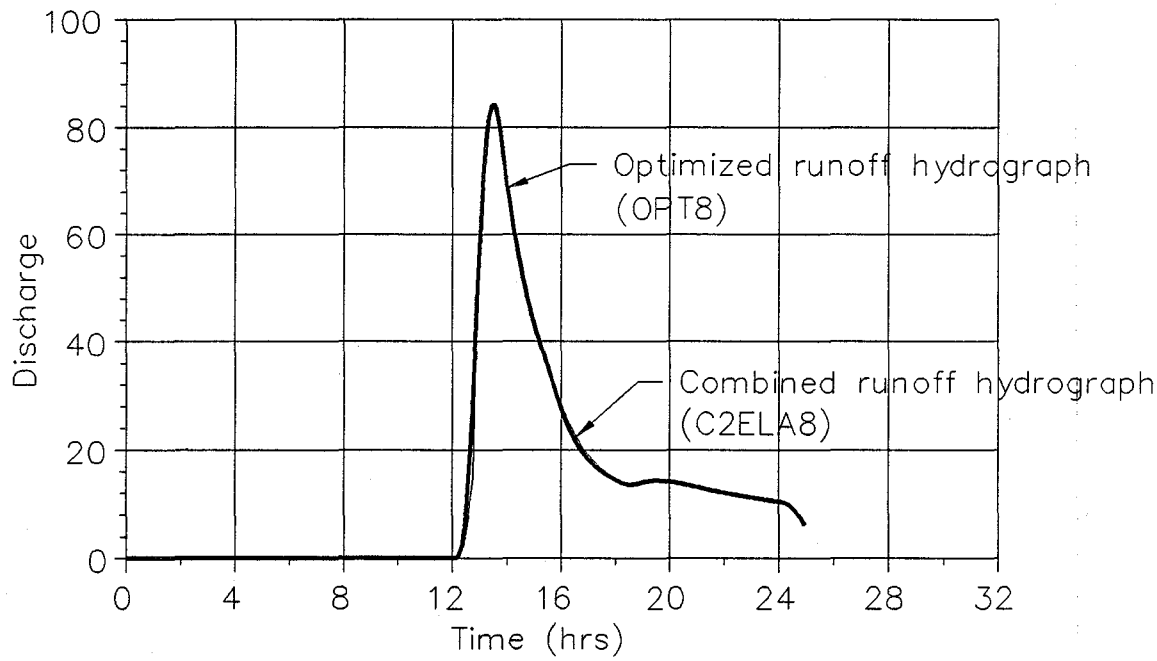
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  83          KK   RELA8
  84          KM        Route combined flows to Alma School and Elliot
  85          RK    5280  0.0008   0.016            TRAP     0.0    25.0

  86          KK    OPT8
  87          KM        Optimized single basin for section 15
  88          BA    0.92
  89          LS    2.20    82.5
  90          UD    0.91

  91          KK   ROPT8
  92          KM        Route optimized single basin to Dobson Rds.
  93          KO       1       2
  94          RK    5280  0.0008   0.016            TRAP     0.0    25.0
  95          ZZ
```

Station OPT 15

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

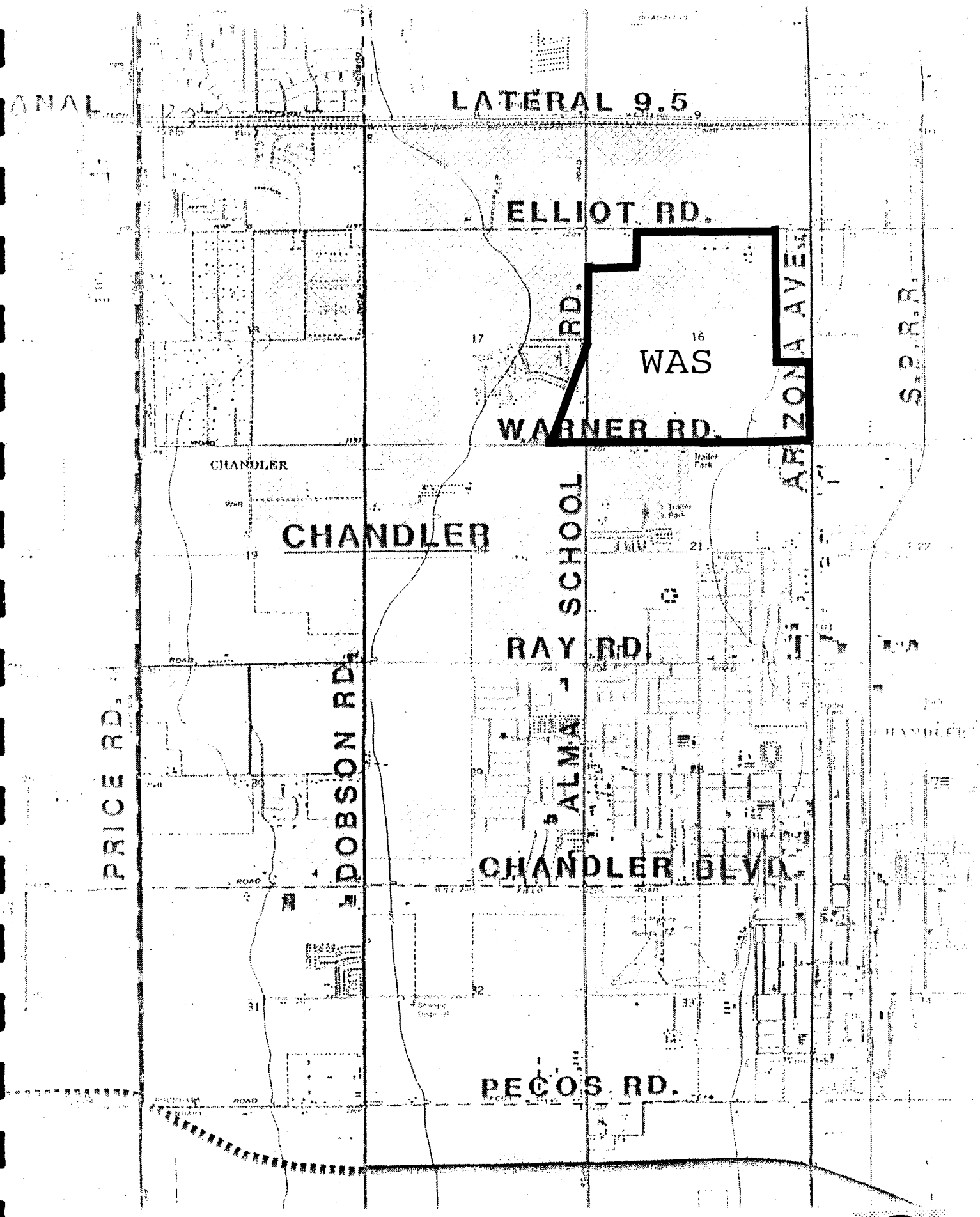
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	ELA1	1.	15.25	1.	0.	0.	.08		
ROUTED TO	RELA1	1.	15.42	1.	0.	0.	.08		
HYDROGRAPH AT	ELA2	30.	13.67	13.	4.	4.	.18		
2 COMBINED AT	CELA2	30.	13.67	14.	5.	4.	.25		
HYDROGRAPH AT	ELA3	40.	13.17	13.	4.	4.	.13		
2 COMBINED AT	CELA3	65.	13.33	27.	8.	8.	.39		
ROUTED TO	RELA3	65.	13.50	27.	8.	8.	.39		
HYDROGRAPH AT	ELA4	2.	15.25	2.	1.	1.	.13		
2 COMBINED AT	CELA4	65.	13.50	28.	9.	9.	.52		
ROUTED TO	RELA4	65.	13.58	28.	9.	9.	.52		
HYDROGRAPH AT	ELA5	23.	13.17	8.	3.	3.	.15		
2 COMBINED AT	CELA5	84.	13.50	36.	12.	11.	.67		
HYDROGRAPH AT	ELA6	1.	15.17	1.	0.	0.	.10		
HYDROGRAPH AT	ELA7	1.	15.25	1.	0.	0.	.06		
2 COMBINED AT	CEAL7	2.	15.17	2.	1.	1.	.16		
ROUTED TO	RELA7	2.	15.50	2.	1.	1.	.16		
HYDROGRAPH AT	ELA8	1.	15.25	1.	0.	0.	.09		
2 COMBINED AT	CELA8	4.	15.42	3.	1.	1.	.25		
2 COMBINED AT	C2ELA8	84.	13.50	38.	13.	12.	.92		
ROUTED TO	RELA8	84.	14.00	38.	12.	12.	.92		
HYDROGRAPH AT	OPT8	84.	13.50	38.	13.	12.	.92		
ROUTED TO	ROPT8	84.	14.00	38.	12.	12.	.92		

Station OPT 15



Runoff Hydrographs for Drainage Subarea EA

Station OPT15


ANAL
LATERAL 9.5
ELLIOT RD.
RD.
16
WAS
WARNER RD.
ARIZONA AVE.
S.P.R.R.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
ALMA
DOBSON RD.
PRICE RD.
CHANDLER BLVD.
PECOS RD.

16
OPT16

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

  1           3D        Price  Road  Offsite Hydrology - Model For Section 16   <WAS.DAT>
  2           ID        Flows to Alma School and Warner Road
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - May 31,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK    WAS1
  8           KM        Runoff from North half of Dave Brown II and Project 12 developments
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.092
 11           LS    2.72      84
 12           UD    0.51

 13           KK   RWAS1
 14           KM        Route WAS1 outflow to WAS2
 15           RK    1800  0.0011   0.016            TRAP     0.0    50.0

 16           KK    WAS2
 17           KM        Runoff from Womack East I & II and MCE 5
 18           BA    0.10
 19           LS    2.56      86
 20           UD    0.55

 21           KK   CWAS2
 22           KM        Combine hydrographs from CWAS2 and RWAS1
 23           KO       1       2
 24           HC       2

 25           KK   RWAS2
 26           KM        Route combined flows from CWAS2 to WAS3
 27           RK    1400  0.0014   0.016            TRAP     0.0    50.0

 28           KK    WAS3
 29           KM        Runoff from Southmore II
 30           BA   0.095
 31           LS    2.77      84
 32           UD    0.62

 33           KK   CWAS3
 34           KM        Combine hydrographs from RWAS2 and WAS3 (@ Alma School)
 35           HC       2

 36           KK   RWAS3
 37           KM        Route combined flows from CWAS3 to WAS6 (along East Alma School)
 38           RK     850  0.0003   0.016            TRAP     0.0    25.0

 39           KK    WAS4
 40           KM        Runoff from South half of Dave Brown II & Project 12
 41           BA   0.078
 42           LS    2.40      88
 43           UD    0.47
```

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

  44          KK   RWAS4
  45          KM        Route combined flows from WAS4 to WAS5
  46          RK    1375  0.0011   0.016            TRAP     0.0    50.0

  47          KK    WAS5
  48          KM        Runoff from MCE 6, Hoopes & MCT East #3
  49          BA   0.108
  50          LS    2.85    82.4
  51          UD    0.37

  52          KK   CWAS5
  53          KM        Combine hydrographs from RWAS4 and WAS5
  54          HC       2

  55          KK   RWAS5
  56          KM        Route combined flows from CWAS5 to WAS6
  57          RK    2650  0.0012   0.016            TRAP     0.0    50.0

  58          KK    WAS6
  59          KM        Runoff from Mastercraft East 1,2 &4
  60          BA   0.090
  61          LS    2.56      86
  62          UD    0.37

  63          KK   CWAS6
  64          KM        Combine hydrographs from RWAS5 and WAS6
  65          HC       2

  66          KK  CWAS6B
  67          KM        Combine hydrographs CWAS6 & RWAS3 - Flow in E. Alma School Rd.
  68          HC       2

  69          KK   RWAS6
  70          KM        Route combined flows from RWAS6 to INTERSECTION (along Alma S.)
  71          RK    1900  0.0004   0.016            TRAP     0.0    25.0

  72          KK    WAS7
  73          KM        Runoff from East Valley Mall - Target Store
  74          BA   0.089
  75          LS    3.00      92
  76          UD    0.47

  77          KK   RWAS7
  78          KM        Route CWAS7 flows to WAS8
  79          RK    1650  0.0018   0.016            TRAP     0.0    25.0

  80          KK    WAS8
  81          KM        Runoff from The Commons development
  82          BA   0.080
  83          LS    2.47      87
  84          UD    0.68
```

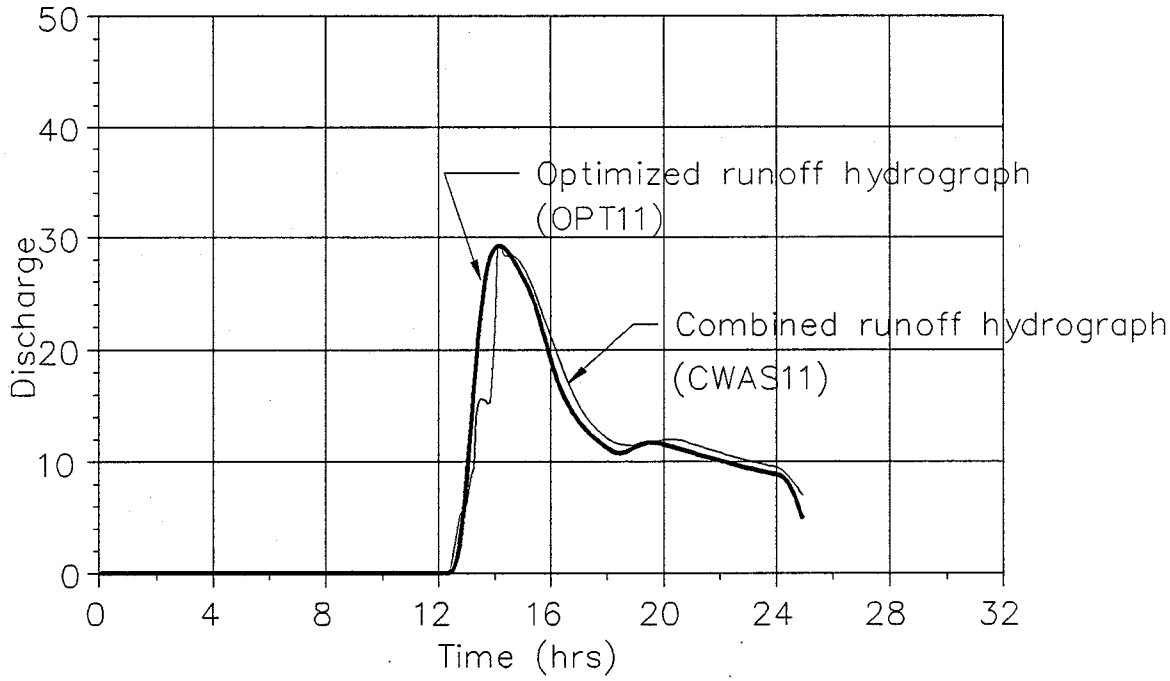
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 85           KK   CWAS8
 86           KM        Combine hydrographs from RWAS7 and WAS8 - Warner Road flows
 87           HC       2

 88           KK   RWAS8
 89           KM        Route CWAS8 flows to Pheasant Run development
 90           RK     900  0.0022   0.016            TRAP     0.0    25.0

 91           KK    WAS9
 92           KM        Runoff from Pheasant Run & Paseo Villa developments
 93           BA   0.020
 94           LS    2.55      89
 95           UD    0.34

 96           KK   CWAS9
 97           KM        Combine flows in N. Warner Road
 98           HC       2

 99           KK   RWAS9
100           KM        Route CWAS9 flows to Warner and Alma School Intersection
101           RK    1700  0.0021   0.016            TRAP     0.0    25.0

102           KK   WAS10
103           KM        Runoff from Suntech development @ Alma School and Warner
104           BA   0.078
105           LS    3.00      92
106           UD    0.48

107           KK  CWAS10
108           KM        Combine flows in Warner Road @ Alma School
109           HC       2

110           KK     WAS
111           KM        Total Flow in Warner Road @ Alma School (NE CNR)
112           HC       2

113           KK   WAS11
114           KM        Runoff from subarea on west side of Alma School at Warner
115           BA   0.045
116           LS    2.50    92.8
117           UD    0.36

118           KK  CWAS11
119           KM        Combine flows at west side of Alma School at Warner
120           KO       1       2
121           HC       2

122           KK  RWAS11
123           KM        Route flows to Dobson Rd.
124           KO       1       2
125           RK    5280  0.0008   0.016            TRAP     0.0    25.0
```

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

 126          KK   OPT11
 127          KM        Optimized single basin for section 16
 128          BA    0.88
 129          LS    2.64     85.0
 130          UD    0.85

 131          KK  ROPT11
 132          KM        Route optimized single basin to Dobson Rds.
 133          KO       1        2
 134          RK    5280  0.0008   0.016            TRAP     0.0     25.0
 135          ZZ
```

16
OPT16

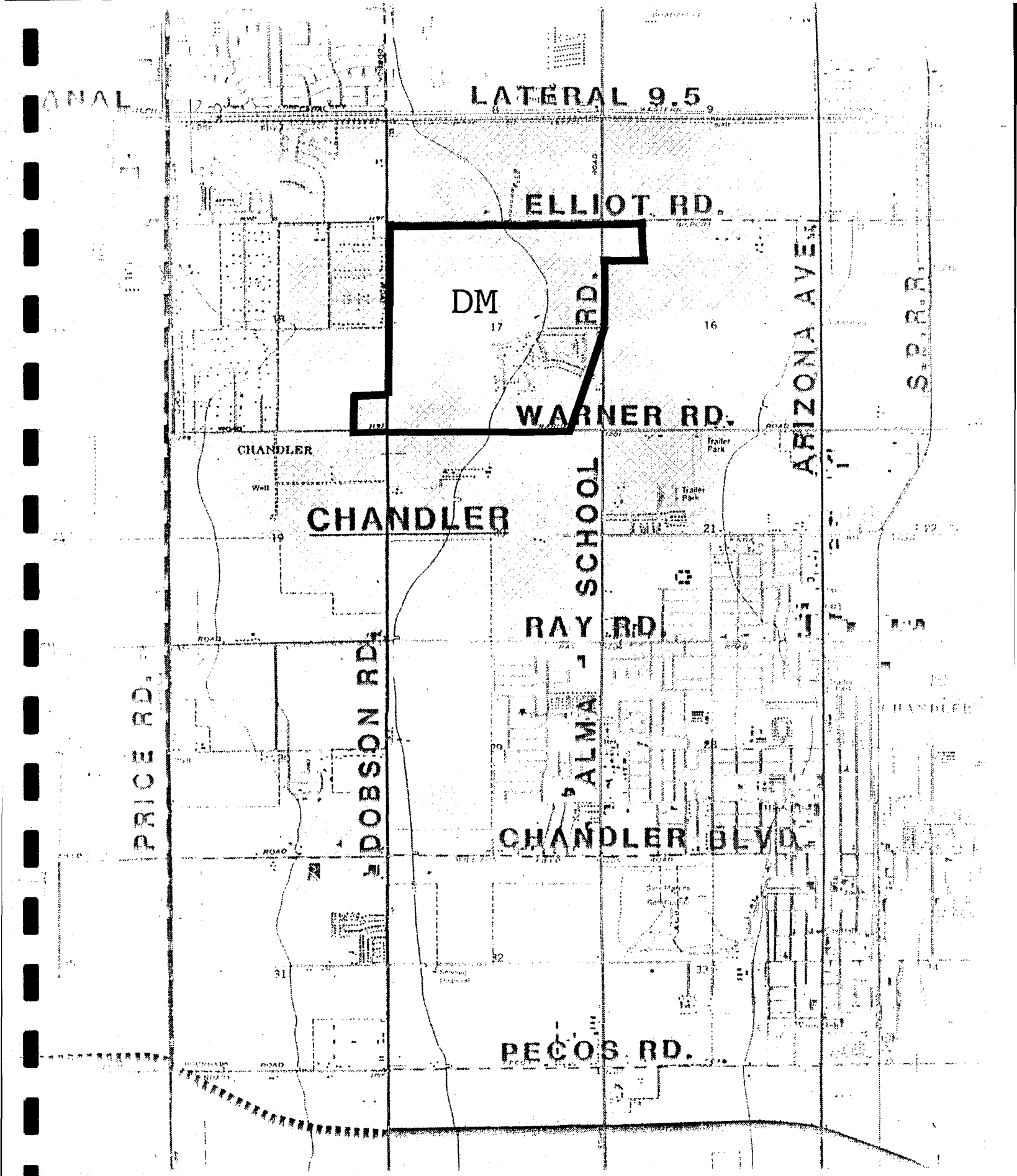
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	WAS1	2.	13.92	2.	1.	1.	.09		
ROUTED TO	RWAS1	2.	14.42	2.	1.	1.	.09		
HYDROGRAPH AT	WAS2	5.	13.33	3.	1.	1.	.10		
2 COMBINED AT	CWAS2	7.	13.92	4.	2.	2.	.19		
ROUTED TO	RWAS2	7.	14.17	4.	2.	2.	.19		
HYDROGRAPH AT	WAS3	2.	14.42	1.	1.	1.	.09		
2 COMBINED AT	CWAS3	9.	14.25	6.	2.	2.	.29		
ROUTED TO	RWAS3	9.	14.42	6.	2.	2.	.29		
HYDROGRAPH AT	WAS4	8.	13.00	3.	1.	1.	.08		
ROUTED TO	RWAS4	8.	13.25	3.	1.	1.	.08		
HYDROGRAPH AT	WAS5	2.	14.50	1.	1.	0.	.11		
2 COMBINED AT	CWAS5	9.	13.33	4.	2.	2.	.19		
ROUTED TO	RWAS5	9.	13.75	4.	2.	1.	.19		
HYDROGRAPH AT	WAS6	5.	13.00	2.	1.	1.	.09		
2 COMBINED AT	CWAS6	13.	13.75	6.	2.	2.	.28		
2 COMBINED AT	CWAS6B	20.	14.17	12.	5.	4.	.56		
ROUTED TO	RWAS6	20.	14.58	12.	4.	4.	.56		
HYDROGRAPH AT	WAS7	2.	15.17	1.	1.	0.	.09		
ROUTED TO	RWAS7	2.	15.50	1.	0.	0.	.09		
HYDROGRAPH AT	WAS8	6.	13.42	3.	1.	1.	.08		
2 COMBINED AT	CWAS8	6.	13.42	4.	1.	1.	.17		
ROUTED TO	RWAS8	6.	13.50	4.	1.	1.	.17		
HYDROGRAPH AT	WAS9	2.	12.92	1.	0.	0.	.02		
2 COMBINED AT	CWAS9	7.	13.50	4.	2.	2.	.19		
ROUTED TO	RWAS9	7.	13.67	4.	2.	2.	.19		
HYDROGRAPH AT	WAS10	1.	15.17	1.	0.	0.	.08		
2 COMBINED AT	CWAS10	7.	13.75	5.	2.	2.	.27		
2 COMBINED AT	WAS	26.	14.17	17.	7.	6.	.83		
HYDROGRAPH AT	WAS11	6.	12.92	2.	1.	1.	.05		
2 COMBINED AT	CWAS11	29.	14.17	18.	7.	7.	.88		
ROUTED TO	RWAS11	29.	14.83	18.	7.	7.	.88		
HYDROGRAPH AT	OPT11	29.	14.17	19.	7.	7.	.88		
ROUTED TO	ROPT11	29.	14.83	19.	7.	7.	.88		



Runoff Hydrographs for Drainage Subarea WAS

16
OPT16


LATERAL 9.5
ELLIOT RD.
DM
RD.
WARNER RD.
ARIZONA AVE
S.P.R.R.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT 17

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 17   <DM>
  2           ID        Flows to Dobson Rd and Mesquite St (routed and optimized routed outflow)
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK     DM1
  8           KM        Runoff from Mervyn's and Fry's
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.055
 11           LS    2.54      94
 12           UD    0.35

 13           KK    RDM1
 14           KM        Route DM1 to bottom of DM2
 15           RK    5600  0.0013   0.016            TRAP     0.0    50.0

 16           KK     DM2
 17           KM        Runoff from Bridgeport and Elliot Square
 18           BA    0.05
 19           LS    2.53    85.5
 20           UD    0.35

 21           KK    CDM2
 22           KM        Combine hydrographs from DM1 and DM2
 23           HC       2

 24           KK    RDM2
 25           KM        Route combined flows from DM1 and DM2 to section 17 outfall
 26           RK    1600  0.0011   0.016            TRAP     0.0    50.0

 27           KK     DM3
 28           KM        Runoff from undeveloped areas at Warner and Dobson
 29           BA   0.045
 30           LS    1.85      86
 31           UD    0.85

 32           KK    RDM3
 33           KM        Route DM3 to section 17 outfall
 34           RK    1800   .0011    .016            TRAP     0.0    50.0

 35           KK    CDM3
 36           KM        Combine hydrographs from DM3 and DM1/DM2
 37           HC       2

 38           KK     DM4
 39           KM        Runoff from parts Saratoga Sq. and Dobson Estates II
 40           BA     .11
 41           LS    2.60      86
 42           UD    0.67
```

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

  43          KK     DM5
  44          KM        Runoff from Dobson Estates III
  45          BA     .09
  46          LS    2.60       84
  47          UD     .38

  48          KK     DM6
  49          KM        Runoff from College Park 12 and 16, College Park Woods
  50          BA    0.08
  51          LS    2.60       85
  52          UD    0.58

  53          KK     DM7
  54          KM        Runoff from College Park 14 and 15
  55          BA    0.11
  56          LS    2.60       84
  57          UD     .63

  58          KK     DM8
  59          KM        Runoff from parts College Park 18 and 19
  60          BA    0.12
  61          LS    2.60       84
  62          UD     .63

  63          KK    CDM8
  64          KM        Combine hydrographs from DM4 thru DM8
  65          HC       5

  66          KK    RDM8
  67          KM        Route DM4 thru DM8 comb. hyds. to bottom of DM9
  68          RK    1400   .0013    .016            TRAP     0.0    50.0

  69          KK     DM9
  70          KM        Runoff from Parts Knoell East and Cameo East
  71          BA    0.13
  72          LS    2.60    86.4
  73          UD     .57

  74          KK    CDM9
  75          KM        Combine hydrographs from DM9 and DM4 thru DM8
  76          HC       2

  77          KK    RDM9
  78          KM        Route comb. hyds. DM9 and DM4 thru DM5 to bottom of DM10
  79          RK    1700   .0013    .016            TRAP     0.0    50.0

  80          KK    DM10
  81          KM        Runoff from parts Knoell East and Cameo East
  82          BA    0.10
  83          LS    2.60       86
  84          UD     .53
```

OPT17

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

 85           KK   CDM10
 86           KM        Combine hydrographs from DM9 (DM4 thru DM8) and DM10
 87           HC       2

 88           KK   RDM10
 89           KM        Route combined DM10 hydrographs to Section 17 outfall
 90           RK     500   .0013    .016            TRAP     0.0    50.0

 91           KK    DM11
 92           KM        Runoff from College Park 18 and Chandler Pulte Villas
 93           BA    0.11
 94           LS    2.60      84
 95           UD    0.65

 96           KK   RDM11
 97           KM        Route DM11 hydrograph to Section 17 outfall
 98           RK     700   .0011    .016            TRAP     0.0    50.0

 99           KK   CDM11
100           KM        Combine all hydrographs at Section 17 outfall
101           HC       3
102           KO       1       2      20

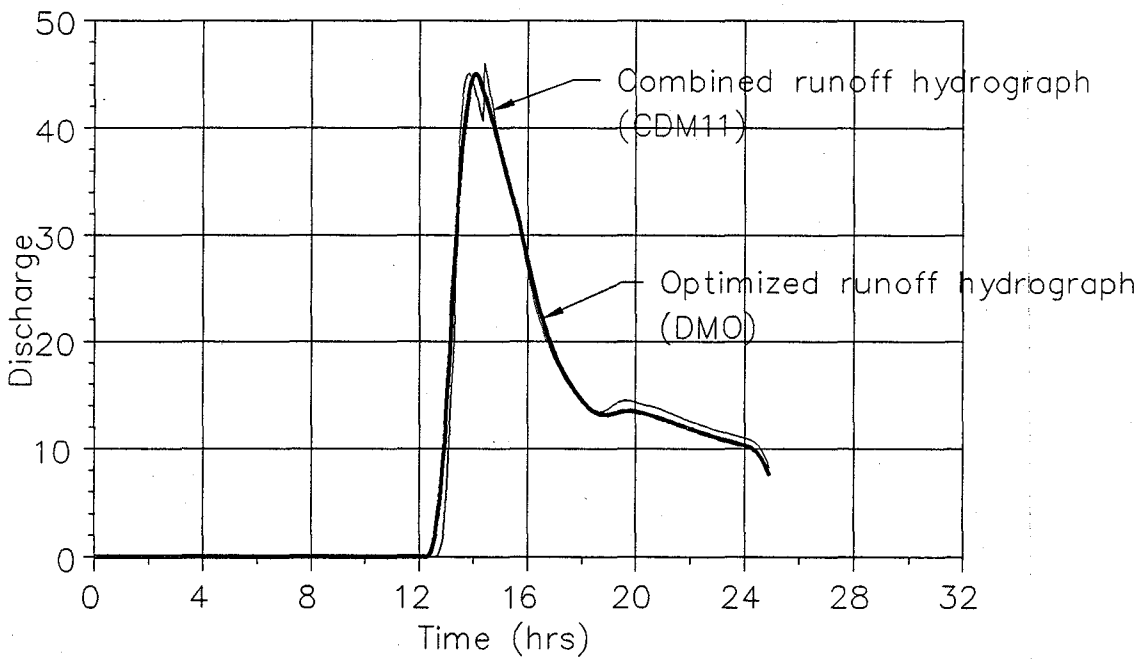
103           KK     RDM
104           KM        Route Section 17 hydrograph to Price and Mesquite
105           RK    5280   .0009    .016            TRAP     0.0    50.0
106           KO       1       2      20

107           KK     DMO
108           KM        Runoff from Optimized Sect. 17 Hydrograph
109           BA    1.00
110           LS    2.45    82.3
111           UD    1.14
112           KO       1       2      20

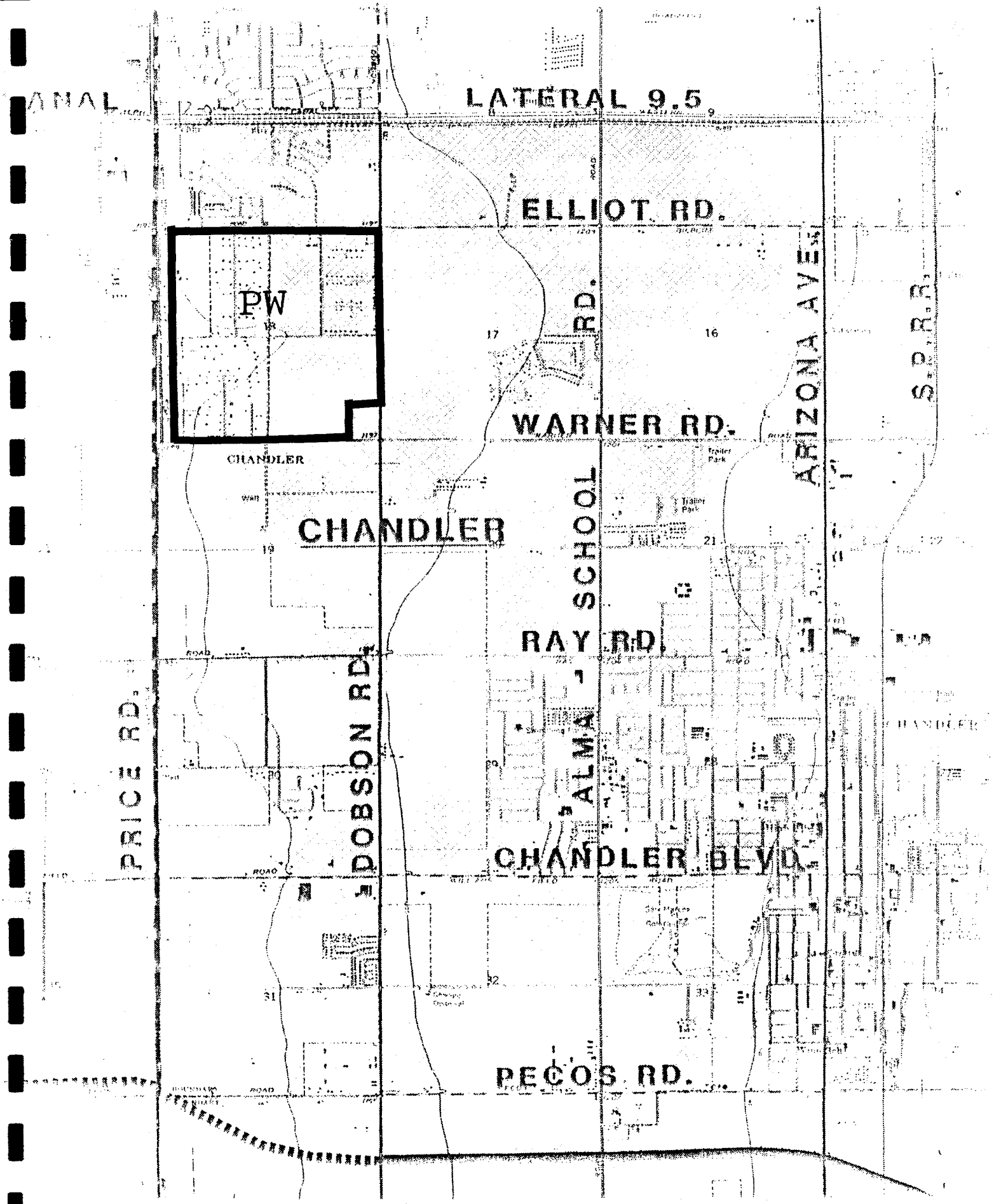
113           KK    RDMO
114           KM        Route optimized Section 17 hydrograph to Price and Mesquite
115           RK    5280   .0009    .016            TRAP     0.0    50.0
116           KO       1       2      20
117           ZZ
```

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	DM1	7.	12.92	3.	1.	1.	.05		
ROUTED TO	RDM1	7.	14.08	3.	1.	1.	.05		
HYDROGRAPH AT	DM2	3.	12.92	1.	1.	0.	.05		
2 COMBINED AT	CDM2	9.	14.08	4.	1.	1.	.11		
ROUTED TO	RDM2	8.	14.42	4.	1.	1.	.11		
HYDROGRAPH AT	DM3	9.	13.25	3.	1.	1.	.05		
ROUTED TO	RDM3	9.	13.58	3.	1.	1.	.05		
2 COMBINED AT	CDM3	14.	14.42	7.	2.	2.	.15		
HYDROGRAPH AT	DM4	5.	13.67	3.	1.	1.	.11		
HYDROGRAPH AT	DM5	4.	13.17	2.	1.	1.	.09		
HYDROGRAPH AT	DM6	3.	13.50	2.	1.	1.	.08		
HYDROGRAPH AT	DM7	4.	13.67	2.	1.	1.	.11		
HYDROGRAPH AT	DM8	5.	13.67	3.	1.	1.	.12		
5 COMBINED AT	CDM8	20.	13.58	12.	4.	4.	.51		
ROUTED TO	RDM8	20.	13.75	12.	4.	4.	.51		
HYDROGRAPH AT	DM9	6.	13.50	3.	1.	1.	.13		
2 COMBINED AT	CDM9	26.	13.75	15.	6.	5.	.64		
ROUTED TO	RDM9	26.	13.92	15.	6.	5.	.64		
HYDROGRAPH AT	DM10	4.	13.42	3.	1.	1.	.10		
2 COMBINED AT	CDM10	30.	13.92	17.	6.	6.	.74		
ROUTED TO	RDM10	30.	13.92	17.	6.	6.	.74		
HYDROGRAPH AT	DM11	4.	13.67	2.	1.	1.	.11		
ROUTED TO	RDM11	4.	13.83	2.	1.	1.	.11		
3 COMBINED AT	CDM11	46.	14.42	27.	10.	9.	1.00		
ROUTED TO	RDM	46.	15.17	26.	9.	9.	1.00		
HYDROGRAPH AT	DMO	45.	14.08	27.	10.	9.	1.00		
ROUTED TO	RDMO	45.	14.83	27.	9.	9.	1.00		



Runoff Hydrographs for Drainage Subarea DM


ANAL
LATERAL 9.5
ELLIOT RD.
PW
RD.
ARIZONA AVE
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT 18

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 18   <PW>
  2           ID        Flows to Price and Warner Basin "E" (routed and optimized routed outflow
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK     PW1
  8           KM        Runoff from Trails End Estates - 1 acre horse lots
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.125
 11           LS    3.00      72
 12           UD    0.72

 13           KK    RPW1
 14           KM        Route PW1 to bottom of PW2
 15           RK     800 0.00105   0.016            TRAP     0.0    50.0

 16           KK     PW2
 17           KM        Runoff from Heatherbrook and Heatherbrook Square
 18           BA    0.14
 19           LS    3.00    80.5
 20           UD    0.57

 21           KK    CPW2
 22           KM        Combine hydrographs from PW1 and PW2
 23           HC       2

 24           KK    RPW2
 25           KM        Route combined flows from PW1 and PW2 to bottom of PW4
 26           RK    1500  0.0013   0.016            TRAP     0.0    50.0

 27           KK     PW3
 28           KM        Runoff from parts Orangetree/Silvergate II
 29           BA     .14
 30           LS    2.50      85
 31           UD    0.47

 32           KK     PW4
 33           KM        Runoff from part Orangetree/Silvergate II and Tierra Dobson
 34           BA     .09
 35           LS    2.26      88
 36           UD     .52

 37           KK     PW5
 38           KM        Runoff from unnamed parcel - 2 acre horse lots
 39           BA    0.03
 40           LS    3.00      72
 41           UD    0.29
```

OPT18

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

  42          KK    CPW5
  43          KM        Combine Hydrographs from PW1 thru PW5
  44          HC       4

  45          KK    RPW5
  46          KM        Route hydrographs PW1 thru PW5 to prop. det. basin "E"
  47          RK    2200    .003    .016            TRAP     0.0    50.0

  48          KK     PW6
  49          KM        Runoff from Caballos Ranchitos II - 1 acre horse lots
  50          BA   0.125
  51          LS    3.00      74
  52          UD    0.63

  53          KK    RPW6
  54          KM        Route hydrograph PW3 to proposed detention basin "E"
  55          RK     600   .0013    .016            TRAP     0.0    50.0

  56          KK     PW7
  57          KM        Runoff from part Caballos Ranchitos I - 2 acre horse lots
  58          BA    0.08
  59          LS    3.00      77
  60          UD     .47

  61          KK     PW8
  62          KM        Runoff from part Caballos Ranchitos I and S. of Warner Rd.
  63          BA    0.07
  64          LS    1.39      75
  65          UD    0.43

  66          KK    CPW8
  67          KM        Combine all hydrographs PW1 thru PW8 at proposed detention area "E"
  68          HC       4
  69          KO       1       2      20

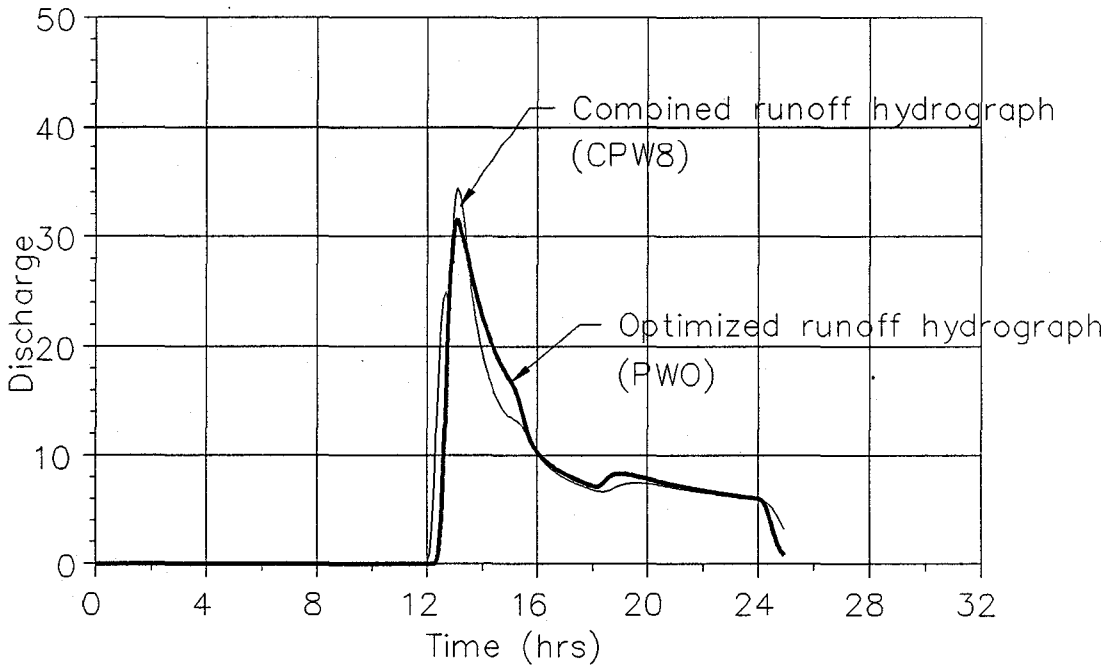
  70          KK     PWO
  71          KM        Runoff from all areas (optimized hydrograph)
  72          BA    0.80
  73          LS    2.50    75.8
  74          UD    0.44
  75          KO       1       2      20
  76          ZZ
```

OPT18

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

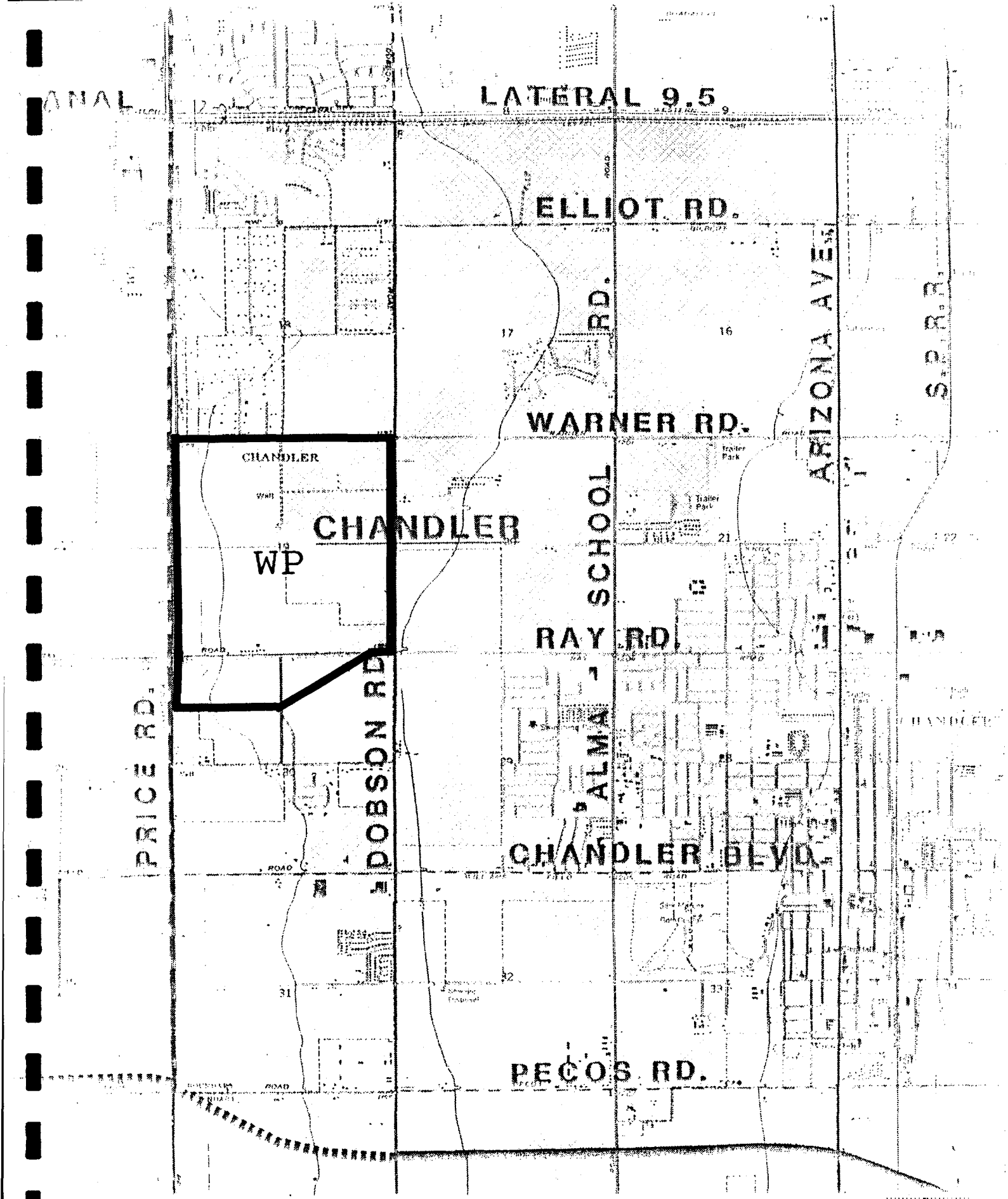
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	PW1	1.	15.50	1.	0.	0.	.13		
ROUTED TO	RPW1	1.	15.83	1.	0.	0.	.13		
HYDROGRAPH AT	PW2	1.	15.33	1.	0.	0.	.14		
2 COMBINED AT	CPW2	2.	15.50	1.	1.	1.	.26		
ROUTED TO	RPW2	2.	15.92	1.	1.	1.	.26		
HYDROGRAPH AT	PW3	9.	13.08	4.	1.	1.	.14		
HYDROGRAPH AT	PW4	13.	13.00	5.	2.	1.	.09		
HYDROGRAPH AT	PW5	0.	15.08	0.	0.	0.	.03		
4 COMBINED AT	CPW5	22.	13.00	10.	4.	3.	.52		
ROUTED TO	RPW5	22.	13.25	10.	4.	3.	.52		
HYDROGRAPH AT	PW6	1.	15.42	1.	0.	0.	.13		
ROUTED TO	RPW6	1.	15.58	1.	0.	0.	.13		
HYDROGRAPH AT	PW7	1.	15.25	0.	0.	0.	.08		
HYDROGRAPH AT	PW8	25.	12.67	5.	2.	2.	.07		
4 COMBINED AT	CPW8	34.	13.08	15.	6.	5.	.80		
HYDROGRAPH AT	PWO	32.	13.08	15.	6.	5.	.80		

OPT18



Runoff Hydrographs for Drainage Subarea PW

OPT 18


ANAL
LATERAL 9.5
ELLIOT RD.
RD.
ARIZONA AVE
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
WP
SCHOOL
RAY RD.
PRICE RD.
DOBSON RD
ALMA
CHANDLER BLVD.
PECOS RD.

OPE19

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 19   <WP.DAT>
  2           ID        Flows to Basin So. of Warner Price Road
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK     WP1
  8           KM        Runoff from Lemon Tree, Casa Tierra, & Old West Manor developments
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.052
 11           LS    2.25   86.25
 12           UD    0.33

 13           KK    RWP1
 14           KM        Route WP1 outflow to WP2 along Warner Road
 15           RK    1750  0.0025   0.016            TRAP     0.0    25.0

 16           KK     WP2
 17           KM        Runoff from Clearview Manor
 18           BA    0.06
 19           LS    2.61      84
 20           UD    0.42

 21           KK    CWP2
 22           KM        Combine hydrographs from CWP2 and RWP1
 23           HC       2

 24           KK    RWP2
 25           KM        Route combined flows from CWP2 to WP3
 26           RK    2600  0.0012   0.016            TRAP     0.0    25.0

 27           KK     WP3
 28           KM        Runoff from Cove and Village I at Tiburon
 29           BA   0.044
 30           LS    2.68      84
 31           UD    0.33

 32           KK    CWP3
 33           KM        Combine hydrographs from RWP2 and WP3
 34           HC       2

 35           KK    RWP3
 36           KM        Route combined flows from CWP3 to Price Road Retention Basin
 37           RK     900  0.0006   0.016            TRAP     0.0    25.0

 38           KK     WP4
 39           KM        Runoff from Village II at Tiburon
 40           BA   0.144
 41           LS    2.68      84      13
 42           UD    0.48
```

GPE19

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

  43          KK    CWP4
  44          KM        Combine flows from WP4 and RWP3 at Price Retention Basin
  45          HC       2

  46          KK     WP5
  47          KM        Runoff from Dave Brown 4 (formerly Clearview Manor II)
  48          BA   0.094
  49          LS    3.00      84
  50          UD    0.52

  51          KK     WP6
  52          KM        Runoff from Silvergate 2 & 3 (No.)
  53          BA   0.097
  54          LS    3.00      84     9.7
  55          UD    0.41

  56          KK    CWP6
  57          KM        Combine hydrographs from WP5 and WP6
  58          HC       2

  59          KK    RWP6
  60          KM        Route flows from CWP6  Basin to Price Road Retention Basin
  61          RK    2900  0.0014   0.016            TRAP     0.0    25.0

  62          KK     WP7
  63          KM        Runoff from Mission Ranch I & II & School site
  64          BA   0.108
  65          LS    2.87    86.8
  66          UD    0.48

  67          KK    CWP7
  68          KM        Combine flows from Mission Ranch into Price Road Retention Basin
  69          HC       2

  70          KK     WP8
  71          KM        Runoff from Seton School and Undeveloped at Dobson and Ray
  72          BA   0.083
  73          LS    1.89    78.2
  74          UD    0.70

  75          KK     WP9
  76          KM        Runoff from Silvergate I development
  77          BA   0.117
  78          LS    3.00      85
  79          UD    0.33

  80          KK    CWP9
  81          KM        Combine flows in N. Ray Road
  82          HC       2
```

OPE19

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

  83          KK   RCWP9
  84          KM        Route CWP9 flows to Price Road Basin (So.)
  85          RK    3700  0.0011   0.016            TRAP     0.0    25.0

  86          KK    WP10
  87          KM        Runoff from SO. half of PAD (below Mission Park dev.) undeveloped
  88          BA   0.125
  89          LS              79
  90          UD    0.58

  91          KK    WP11
  92          KM        Runoff from proposed Ray Ranch (portion n. of irr. ditch)
  93          BA    .058
  94          LS     1.5      86
  95          UD     .39

  96          KK   RWP11
  97          KM        Route WP11 hydrograph to bottom of WP12
  98          RK    1400  0.0034    .016            TRAP     0.0    50.0

  99          KK    WP12
 100          KM        Runoff from Raintree Ranch
 101          BA    0.12
 102          LS     2.7      84
 103          UD    0.48

 104          KK   CWP12
 105          KM        Combine WP11 and WP12 hydrographs
 106          HC       2

 107          KK  RWP12A
 108          KM        Route comb. WP11/12 hydrographs to Price and Ray (via street)
 109          RK    1000  0.0034    .016            TRAP     0.0    50.0

 110          KK  RWP12B
 111          KM        Route comb. WP11/12 hydrographs to proposed Det. Area "F" (via ditch)
 112          RK    1300  0.0010    .016            TRAP      10       3

 113          KK   CWP10
 114          KM        Combine flows in Price Road Basin (So. end )
 115          HC       4

 116          KK  C2WP10
 117          KM        Total Flow in Price Road Retention Basin
 118          KO       1       2      20
 119          HC       2

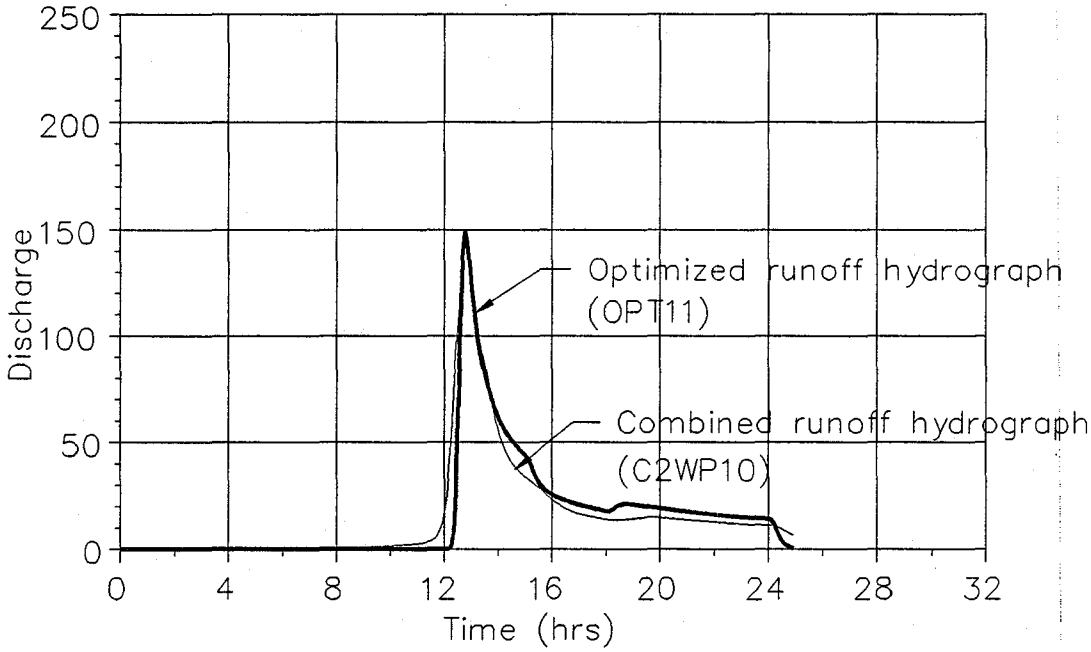
 120          KK   OPT11
 121          KM        Optimized single basin for section 19
 122          KO       1       2      20
 123          BA    1.10
 124          LS    2.43    89.6
 125          UD    0.30
 126          ZZ
```

OPE19

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

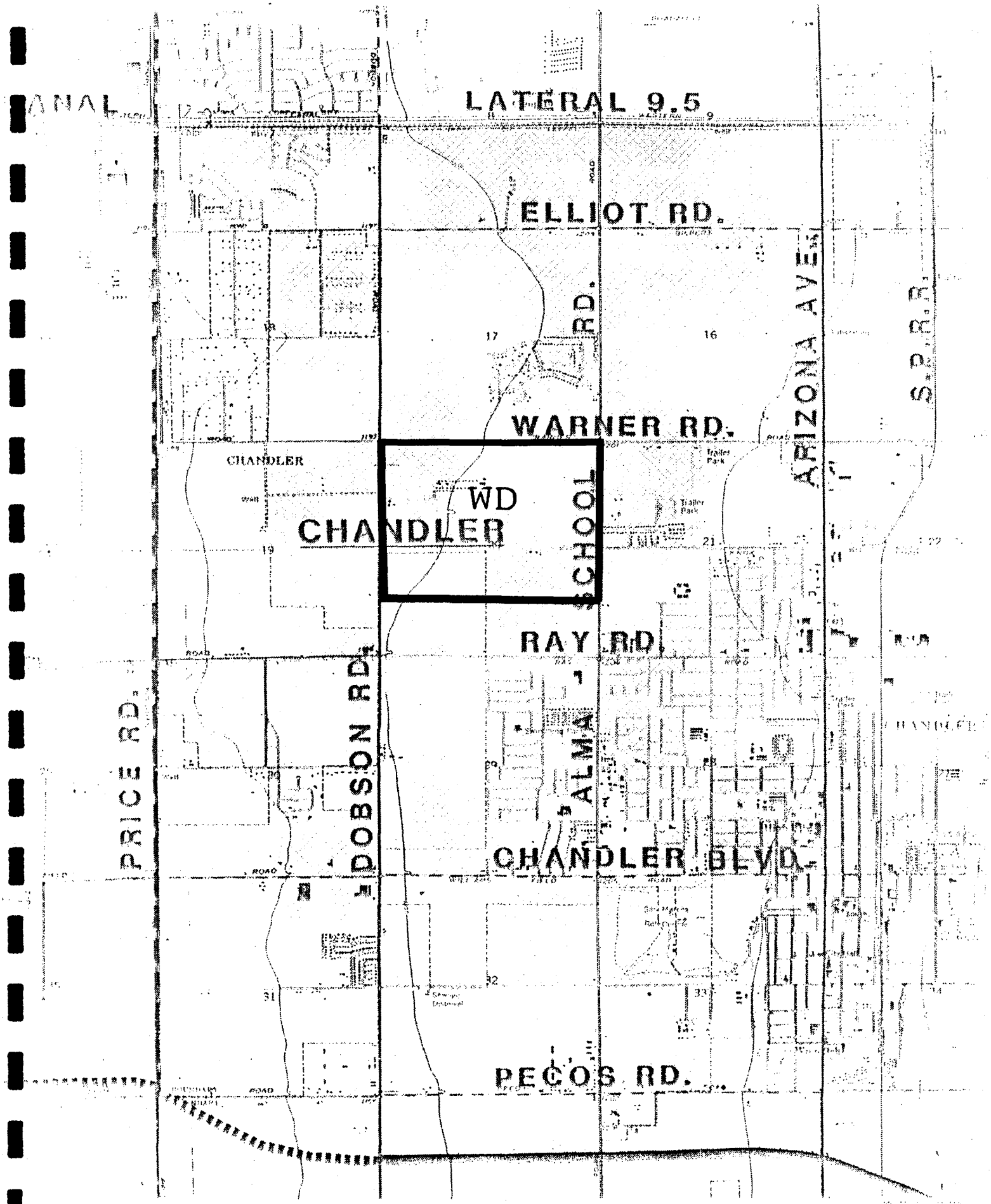
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	WP1	9.	12.75	2.	1.	1.	.05		
ROUTED TO	RWP1	9.	12.92	2.	1.	1.	.05		
HYDROGRAPH AT	WP2	2.	13.33	1.	1.	0.	.06		
2 COMBINED AT	CWP2	11.	13.00	4.	1.	1.	.11		
ROUTED TO	RWP2	11.	13.33	4.	1.	1.	.11		
HYDROGRAPH AT	WP3	1.	13.42	1.	0.	0.	.04		
2 COMBINED AT	CWP3	12.	13.33	5.	2.	2.	.16		
ROUTED TO	RWP3	12.	13.50	5.	2.	2.	.16		
HYDROGRAPH AT	WP4	28.	12.50	8.	3.	3.	.14		
2 COMBINED AT	CWP4	28.	12.50	12.	4.	4.	.30		
HYDROGRAPH AT	WP5	1.	15.25	1.	0.	0.	.09		
HYDROGRAPH AT	WP6	15.	12.50	3.	1.	1.	.10		
2 COMBINED AT	CWP6	15.	12.50	4.	1.	1.	.19		
ROUTED TO	RWP6	15.	12.83	4.	1.	1.	.19		
HYDROGRAPH AT	WP7	2.	14.83	1.	1.	1.	.11		
2 COMBINED AT	CWP7	15.	12.83	5.	2.	2.	.30		
HYDROGRAPH AT	WP8	13.	13.08	4.	1.	1.	.08		
HYDROGRAPH AT	WP9	1.	15.08	1.	0.	0.	.12		
2 COMBINED AT	CWP9	13.	13.08	5.	2.	2.	.20		
ROUTED TO	RCWP9	13.	13.58	5.	2.	2.	.20		
HYDROGRAPH AT	WP10	85.	12.67	19.	5.	5.	.13		
HYDROGRAPH AT	WP11	30.	12.58	6.	2.	2.	.06		
ROUTED TO	RWP11	30.	12.75	6.	2.	2.	.06		
HYDROGRAPH AT	WP12	3.	13.75	2.	1.	1.	.12		
2 COMBINED AT	CWP12	31.	12.75	8.	3.	3.	.18		
ROUTED TO	RWP12A	30.	12.83	8.	3.	3.	.18		
ROUTED TO	RWP12B	30.	12.92	8.	3.	2.	.18		
4 COMBINED AT	CWP10	126.	12.83	36.	12.	11.	.80		
2 COMBINED AT	C2WP10	149.	12.75	47.	16.	15.	1.10		
HYDROGRAPH AT	OPT11	149.	12.75	48.	16.	16.	1.10		

OPT19



Runoff Hydrographs for Drainage Subarea WP

OPE19


ANAL
LATERAL 9.5
ELLIOT RD.
RD.
17
16
ARIZONA AVE
S.P.R.R.
WARNER RD.
CHANDLER
WD
CHANDLER
SCHOOL
19
21
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
31
32
33
PECOS RD.

OPT20

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 20   <WD.DAT>
  2           ID        Flows to Dobson and Warner Road
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK     WD1
  8           KM        Runoff from East half of Motorola
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.063
 11           LS    3.00      88
 12           UD    0.33

 13           KK    RWD1
 14           KM        Route WD1 outflow to WD2
 15           RK    3500  0.0004   0.016            TRAP     0.0    25.0

 16           KK     WD2
 17           KM        Runoff from Warner Plaza & Rini Office Complex
 18           BA   0.033
 19           LS           93.3
 20           UD    0.29

 21           KK    CWD2
 22           KM        Combine hydrographs from CWD2 and RWD1
 23           HC       2

 24           KK    RWD2
 25           KM        Route combined flows from CWDS2 to WD3
 26           RK    1000  0.0004   0.016            TRAP     0.0    25.0

 27           KK     WD3
 28           KM        Runoff from Brooks Crossing N. III & II & W. I
 29           BA   0.055
 30           LS    2.47      86
 31           UD    0.40

 32           KK    CWD3
 33           KM        Combine hydrographs from RWD2 and WD3
 34           HC       2

 35           KK     WD4
 36           KM        Runoff from West half of Motorola  (undeveloped)
 37           BA   0.063
 38           LS    1.50      83
 39           UD    0.60

 40           KK     WD5
 41           KM        Runoff from Continental Terrace
 42           BA   0.083
 43           LS    2.50    85.6
 44           UD    0.47
```

OPT20

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

  45          KK    CWD5
  46          KM        Combine hydrographs from WD4 & WD5
  47          HC       2

  48          KK     WD6
  49          KM        Runoff from Brooks Crossing
  50          BA   0.063
  51          LS    2.63      84
  52          UD    0.37

  53          KK    CWD6
  54          KM        Combine hydrographs from CWD5 and WD6
  55          HC       2

  56          KK    RWD6
  57          KM        Route CWD6 flows to Warner Road
  58          RK    2650  0.0004   0.016            TRAP     0.0    25.0

  59          KK   CRWD6
  60          KM        Combine flows at Warner Road and WD3
  61          HC       2

  62          KK   R2WD6
  63          KM        Route combined flows from CRWD6 to WD7
  64          RK     900  0.0012   0.016            TRAP     0.0    25.0

  65          KK     WD7
  66          KM        Runoff from Knoell East 6
  67          BA   0.073
  68          LS    2.60     85.3
  69          UD   0.375

  70          KK    CWD7
  71          KM        Combine flows at Warner and WD7
  72          HC       2

  73          KK    RWD7
  74          KM        Route CWD7 flows to WD12 (Warner & Dobson intersection)
  75          RK    1750  0.0011   0.016            TRAP     0.0    25.0

  76          KK     WD8
  77          KM        Runoff from Knoell East  # 7  (Canyon Run)
  78          BA   0.070
  79          LS    2.71      84
  80          UD    0.40

  81          KK     WD9
  82          KM        Runoff from Lakepoint
  83          BA   0.063
  84          LS    2.08      84
  85          UD    0.35
```

OPT20

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

 86           KK    CWD9
 87           KM        Combine flows at Point Lake detention basin
 88           HC       2

 89           KK    RWD9
 90           KM        Route CWD9 flows to Dobson at mid section
 91           RK    1300  0.0021   0.016            TRAP     0.0    25.0

 92           KK    WD10
 93           KM        Runoff from Andersen Elementry and Junior High Schools
 94           BA   0.063
 95           LS    3.00      75
 96           UD    0.45

 97           KK   CWD10
 98           KM        Combine flows in Dobson Road @ mid section
 99           HC       2

100           KK  RCWD10
101           KM        Route flows from midsection of Dobson to WD11
102           RK     800  0.0004   0.016            TRAP     0.0    25.0

103           KK    WD11
104           KM        Runoff from W. Knoell #7
105           BA   0.063
106           LS    2.71      84
107           UD    0.34

108           KK   CWD11
109           KM        Combine flows along Dobson s. of Warner
110           HC       2

111           KK  RCWD11
112           KM        Route flows to Warner & Dobson Road intersection
113           RK    1840  0.0004   0.016            TRAP     0.0    25.0

114           KK  CRWD11
115           KM        Combine flows at Warner and Dobson W/O immediate offsite
116           HC       2

117           KK    WD12
118           KM        Runoff from Knoell #7
119           BA   0.050
120           LS    1.50      83
121           UD    0.48

122           KK   CWD12
123           KM        Combine flows at Warner and Dobson Road Intersection
124           KO       1       2      20
125           HC       2
```

OPT20

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

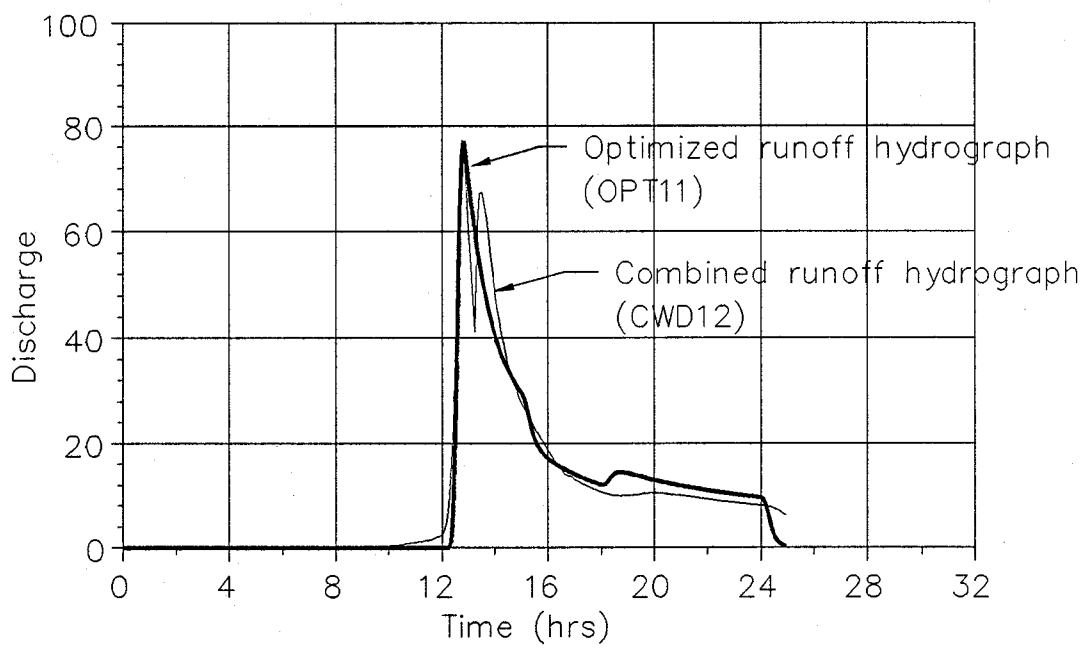
 126          KK  RCWD12
 127          KM        Route flows to Price Road at Warner
 128          KO       1       2      20
 129          RK    5280  0.0019   0.016            TRAP     0.0    25.0
              .
 130          KK   OPT11
 131          KM        Optimized single basin for section 16
 132          BA    0.74
 133          LS    2.53   90.90
 134          UD    0.29

 135          KK  ROPT11
 136          KM        Route optimized single basin to Dobson Rds.
 137          KO       1       2      20
 138          RK    5280  0.0019   0.016            TRAP     0.0    25.0
 139          ZZ
```

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

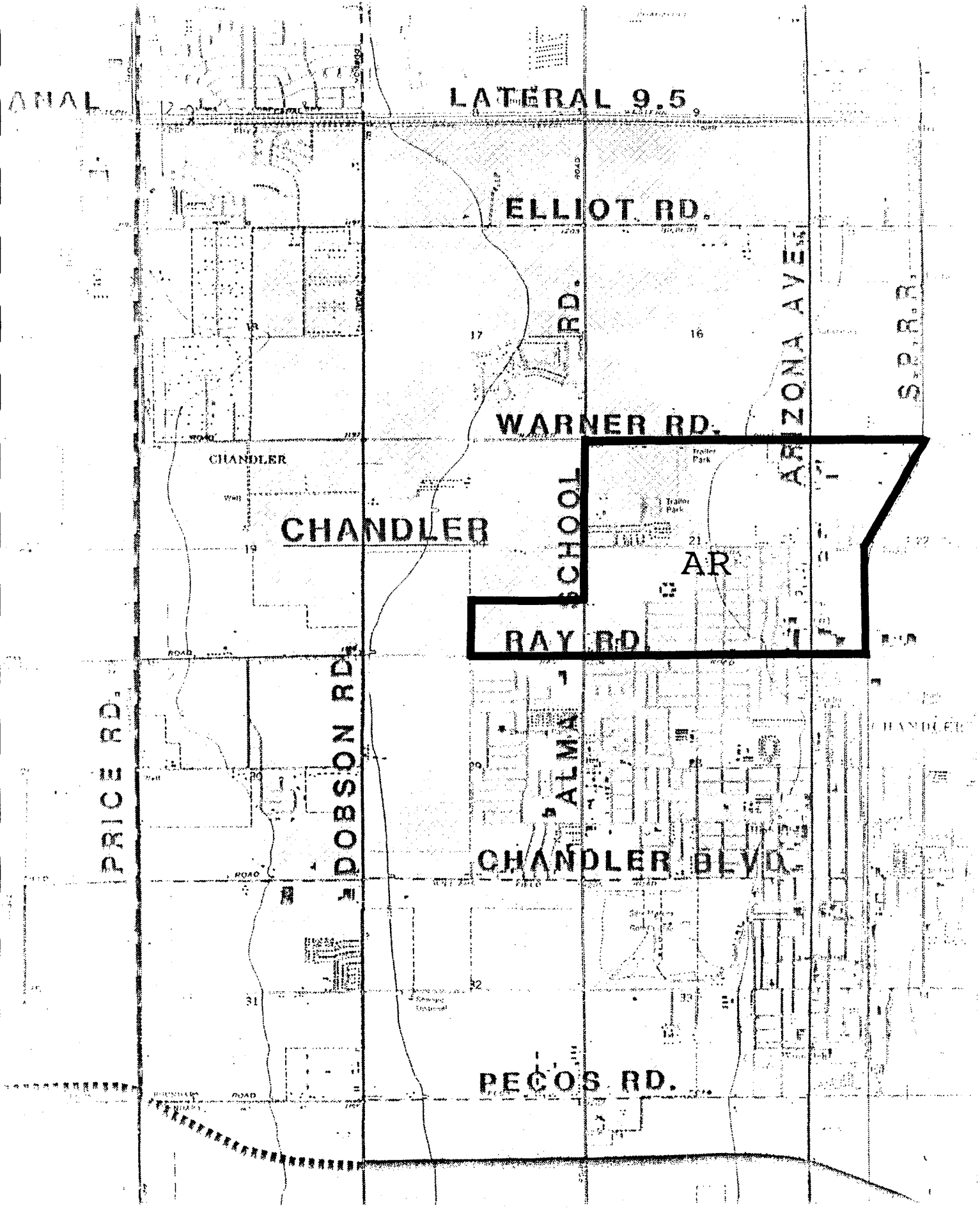
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	WD1	1.	15.08	1.	0.	0.	.06		
ROUTED TO	RWD1	1.	16.58	1.	0.	0.	.06		
HYDROGRAPH AT	WD2	57.	12.33	9.	2.	2.	.03		
2 COMBINED AT	CWD2	57.	12.33	9.	3.	3.	.10		
ROUTED TO	RWD2	56.	12.50	9.	3.	3.	.10		
HYDROGRAPH AT	WD3	4.	12.92	2.	1.	1.	.05		
2 COMBINED AT	CWD3	57.	12.50	10.	3.	3.	.15		
HYDROGRAPH AT	WD4	22.	12.83	6.	2.	2.	.06		
HYDROGRAPH AT	WD5	5.	13.08	3.	1.	1.	.08		
2 COMBINED AT	CWD5	27.	12.92	8.	3.	3.	.15		
HYDROGRAPH AT	WD6	2.	13.25	1.	1.	0.	.06		
2 COMBINED AT	CWD6	29.	12.92	10.	3.	3.	.21		
ROUTED TO	RWD6	29.	13.42	9.	3.	3.	.21		
2 COMBINED AT	CRWD6	57.	12.50	19.	6.	6.	.36		
ROUTED TO	R2WD6	56.	12.58	19.	6.	6.	.36		
HYDROGRAPH AT	WD7	3.	13.17	2.	1.	1.	.07		
2 COMBINED AT	CWD7	57.	12.58	21.	7.	7.	.43		
ROUTED TO	RWD7	57.	12.75	21.	7.	7.	.43		
HYDROGRAPH AT	WD8	2.	13.67	1.	0.	0.	.07		
HYDROGRAPH AT	WD9	13.	12.75	3.	1.	1.	.06		
2 COMBINED AT	CWD9	14.	12.75	5.	2.	2.	.13		
ROUTED TO	RWD9	14.	12.83	5.	2.	2.	.13		
HYDROGRAPH AT	WD10	0.	15.17	0.	0.	0.	.06		
2 COMBINED AT	CWD10	14.	12.83	5.	2.	2.	.20		
ROUTED TO	RCWD10	14.	13.00	5.	2.	2.	.20		
HYDROGRAPH AT	WD11	2.	13.58	1.	0.	0.	.06		
2 COMBINED AT	CWD11	15.	13.00	6.	2.	2.	.26		
ROUTED TO	RCWD11	15.	13.42	6.	2.	2.	.26		
2 COMBINED AT	CRWD11	60.	13.50	26.	9.	9.	.69		
HYDROGRAPH AT	WD12	20.	12.75	5.	1.	1.	.05		
2 COMBINED AT	CWD12	77.	12.75	31.	10.	10.	.74		
ROUTED TO	RCWD12	76.	13.17	31.	10.	10.	.74		
HYDROGRAPH AT	OPT11	77.	12.83	29.	10.	10.	.74		
ROUTED TO	ROPT11	76.	13.25	29.	10.	10.	.74		

OPT20



Runoff Hydrographs for Drainage Subarea WD

OPT20


ANAL
LATERAL 9.5
ELLIOT RD.
RD.
ARIZONA AVE
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
AR
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT21

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

  1           ID        Price Road Offsite Hydrology-For Sec 21(pt w1/2 22,se1/4 20)<AR>
  2           ID        Flows to Arrowhead and Ray (routed and optimized routed outflow)
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK     AR1
  8           KM        Runoff from industrial areas
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.056
 11           LS    3.00      88
 12           UD     .60

 13           KK    RAR1
 14           KM        Route AR1 runoff hydrograph to bottom of AR2
 15           RK    2400  0.0018   0.016            TRAP     0.0    25.0

 16           KK     AR2
 17           KM        Runoff from Smitty's, Warner Park and Kon Tiki Home Park
 18           BA   0.123
 19           LS    1.97    87.2
 20           UD    0.98

 21           KK    CAR2
 22           KM        Combine AR1 and AR2 hydrographs
 23           HC       2

 24           KK    RAR2
 25           KM        Route combined hydrographs AR1/AR2 to bottom of AR3
 26           RK     800   .0015    .016            TRAP     0.0    50.0

 27           KK     AR3
 28           KM        Runoff from Chandler Mobile Manor, Chandler Manor and Evergreen Villa
 29           BA   0.110
 30           LS    2.10    85.5
 31           UD    0.60

 32           KK    CAR3
 33           KM        Combine hydrographs AR1 thru AR3
 34           HC       2

 35           KK    RAR3
 36           KM        Route combined hydrographs AR1 thru AR3 to bottom of AR11
 37           RK    2500  0.0015    .016            TRAP     0.0    50.0

 38           KK     AR4
 39           KM        Runoff from Chapultapec Condos, Thunderbird Estates and PAD
 40           BA   0.089
 41           LS    0.80      89
 42           UD    0.81
```

OPT21

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

  43          KK     AR5
  44          KM        Runoff from Knoell Cedar Ridge, Heatherglen, Dave Brown III, others
  45          BA   0.166
  46          LS    2.72     87.3
  47          UD     .40

  48          KK    RAR5
  49          KM        Route AR5 hydrograph to bottom of AR4
  50          RK    1200  0.0010    .016            TRAP     0.0    25.0

  51          KK    CAR4
  52          KM        Combine hydrographs AR4 and AR5
  53          HC       2

  54          KK    RAR4
  55          KM        Route comb. hydrographs AR4/AR5 to near bottom of AR3 at Alma School
  56          RK    1300  0.0010    .016            TRAP     0.0    50.0

  57          KK    CAR5
  58          KM        Combine hydrographs AR1 thru AR5
  59          HC       2

  60          KK   RAR5A
  61          KM        Route combined hydrographs AR1 thru AR5 to bottom of AR11
  62          RK    2500  0.0010    .016            TRAP     0.0    50.0

  63          KK     AR6
  64          KM        Runoff from mixed use area/PAD
  65          BA   0.162
  66          LS    2.22       85
  67          UD     .88

  68          KK    RAR6
  69          KM        Routed hydrograph AR6 to bottom of AR7
  70          RK    2700  0.0015    .016            TRAP     0.0    50.0

  71          KK     AR7
  72          KM        Runoff from mobile home/Ag area
  73          BA   0.170
  74          LS    1.39       89
  75          UD    0.93

  76          KK    CAR7
  77          KM        Combine AR7 hydrograph with routed AR6 hydrograph
  78          HC       2

  79          KK    RAR7
  80          KM        Route combined hydrographs to bottom of AR8
  81          RK    1800  0.0015    .016            TRAP     0.0    50.0
```

OPT21

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

 82           KK     AR8
 83           KM        Runoff from San Mateo Estates and Olsen Addition
 84           BA    .125
 85           LS     0.0       91
 86           UD    0.60

 87           KK    CAR8
 88           KM        Combine AR8 hydrograph with AR6/AR7 hydrograph
 89           HC       2

 90           KK    RAR8
 91           KM        Route combined hydrographs to bottom of AR9
 92           RK    1800  0.0014    .016            TRAP     0.0      50

 93           KK     AR9
 94           KM        Runoff from Thunderbird Estates I thru VI
 95           BA   0.092
 96           LS     0.0       88
 97           UD    0.67

 98           KK    CAR9
 99           KM        Combine AR9 hydrograph with AR6 thru AR8 combined hydrograph
100           HC       2

101           KK    RAR9
102           KM        Route combined hydrograph to bottom of AR10
103           RK    1200  0.0013    .016            TRAP     0.0      50

104           KK    AR10
105           KM        Runoff from Knox School, Apache Park and College Park 6
106           BA    .107
107           LS     2.7       82
108           UD    0.72 .

109           KK   CAR10
110           KM        Combine AR10 runoff hydrograph with combined AR6/AR9 hydrograph
111           HC       2

112           KK   RAR10
113           KM        Route combined hydrograph to Ray and Alma School
114           RK    1400  0.0013    .016            TRAP     0.0      50

115           KK    AR11
116           KM        Runoff from Chandler Sq., The Boardwalk, Park Ave. Apts.,etc.
117           BA    .125
118           LS    2.72       90
119           UD    0.60

120           KK   CAR11
121           KM        Combine hydrographs from areas AR1 thru AR11
122           HC       3
```

OPT21

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

  123         KK   RAR11
  124         KM        Route combined hydrographs to bottom of AR12 (Arrowhead and Ray)
  125         RK    2600   0.001    .016            TRAP     0.0      50

  126         KK    AR12
  127         KM        Runoff from PAD/Ag
  128         BA    .125
  129         LS    0.75      82
  130         UD     .85

  131         KK   CAR12
  132         KM        Combine all hydrographs AR1 thru AR12
  133         HC       2

  134         KK   RAR12
  135         KM        Route combined hydrographs to Dobson and Ray Roads
  136         RK    2640  0.0010    .016            TRAP     0.0      50
  137         KO       1       2      40

  138         KK     ARO
  139         KM        Optimized combined hydrograph for AR1 thru AR7
  140         BA    1.45
  141         LS    1.22    77.5
  142         UD    1.16

  143         KK    RARO
  144         KM        Route optimized hydrograph to Dobson and Ray Rds.
  145         RK    2640  0.0010    .016            TRAP     0.0    50.0
  146         KO       1       2      40
  147         ZZ
```

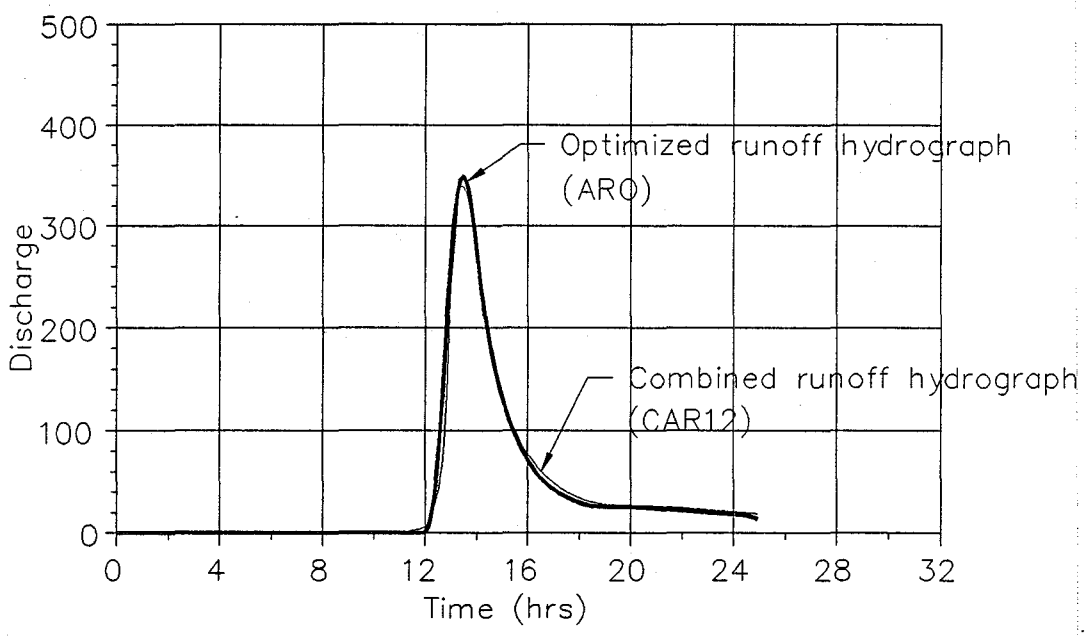
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	AR1	1.	15.33	1.	0.	0.	.06		
ROUTED TO	RAR1	1.	15.92	1.	0.	0.	.06		
HYDROGRAPH AT	AR2	21.	13.42	8.	3.	3.	.12		
2 COMBINED AT	CAR2	21.	13.42	9.	3.	3.	.18		
ROUTED TO	RAR2	21.	13.50	9.	3.	3.	.18		
HYDROGRAPH AT	AR3	18.	13.00	6.	2.	2.	.11		
2 COMBINED AT	CAR3	35.	13.25	15.	5.	5.	.29		
ROUTED TO	RAR3	35.	13.58	15.	5.	5.	.29		
HYDROGRAPH AT	AR4	59.	13.00	16.	5.	4.	.09		
HYDROGRAPH AT	AR5	6.	13.67	3.	1.	1.	.17		
ROUTED TO	RAR5	6.	13.92	3.	1.	1.	.17		
2 COMBINED AT	CAR4	59.	13.00	19.	6.	6.	.25		
ROUTED TO	RAR4	59.	13.17	19.	6.	6.	.25		
2 COMBINED AT	CAR5	89.	13.33	33.	11.	10.	.54		
ROUTED TO	RAR5A	89.	13.58	33.	10.	10.	.54		
HYDROGRAPH AT	AR6	17.	13.42	7.	2.	2.	.16		
ROUTED TO	RAR6	17.	13.83	7.	2.	2.	.16		
HYDROGRAPH AT	AR7	65.	13.17	21.	6.	6.	.17		
2 COMBINED AT	CAR7	73.	13.42	28.	9.	8.	.33		
ROUTED TO	RAR7	73.	13.58	28.	9.	8.	.33		
HYDROGRAPH AT	AR8	135.	12.67	30.	9.	8.	.13		
2 COMBINED AT	CAR8	160.	12.83	57.	17.	17.	.46		
ROUTED TO	RAR8	159.	13.00	57.	17.	17.	.46		
HYDROGRAPH AT	AR9	84.	12.75	20.	6.	6.	.09		
2 COMBINED AT	CAR9	236.	12.92	77.	23.	22.	.55		
ROUTED TO	RAR9	236.	13.00	77.	23.	22.	.55		
HYDROGRAPH AT	AR10	3.	14.25	2.	1.	1.	.11		
2 COMBINED AT	CAR10	237.	13.00	79.	23.	23.	.66		
ROUTED TO	RAR10	236.	13.08	79.	23.	22.	.66		
HYDROGRAPH AT	AR11	5.	14.00	3.	1.	1.	.13		
3 COMBINED AT	CAR11	293.	13.33	114.	35.	34.	1.33		
ROUTED TO	RAR11	292.	13.50	114.	35.	33.	1.33		
HYDROGRAPH AT	AR12	64.	13.00	18.	5.	5.	.13		
2 COMBINED AT	CAR12	339.	13.42	131.	40.	38.	1.45		
ROUTED TO	RAR12	339.	13.58	131.	39.	38.	1.45		
HYDROGRAPH AT	ARO	349.	13.42	135.	40.	38.	1.45		

OPT21

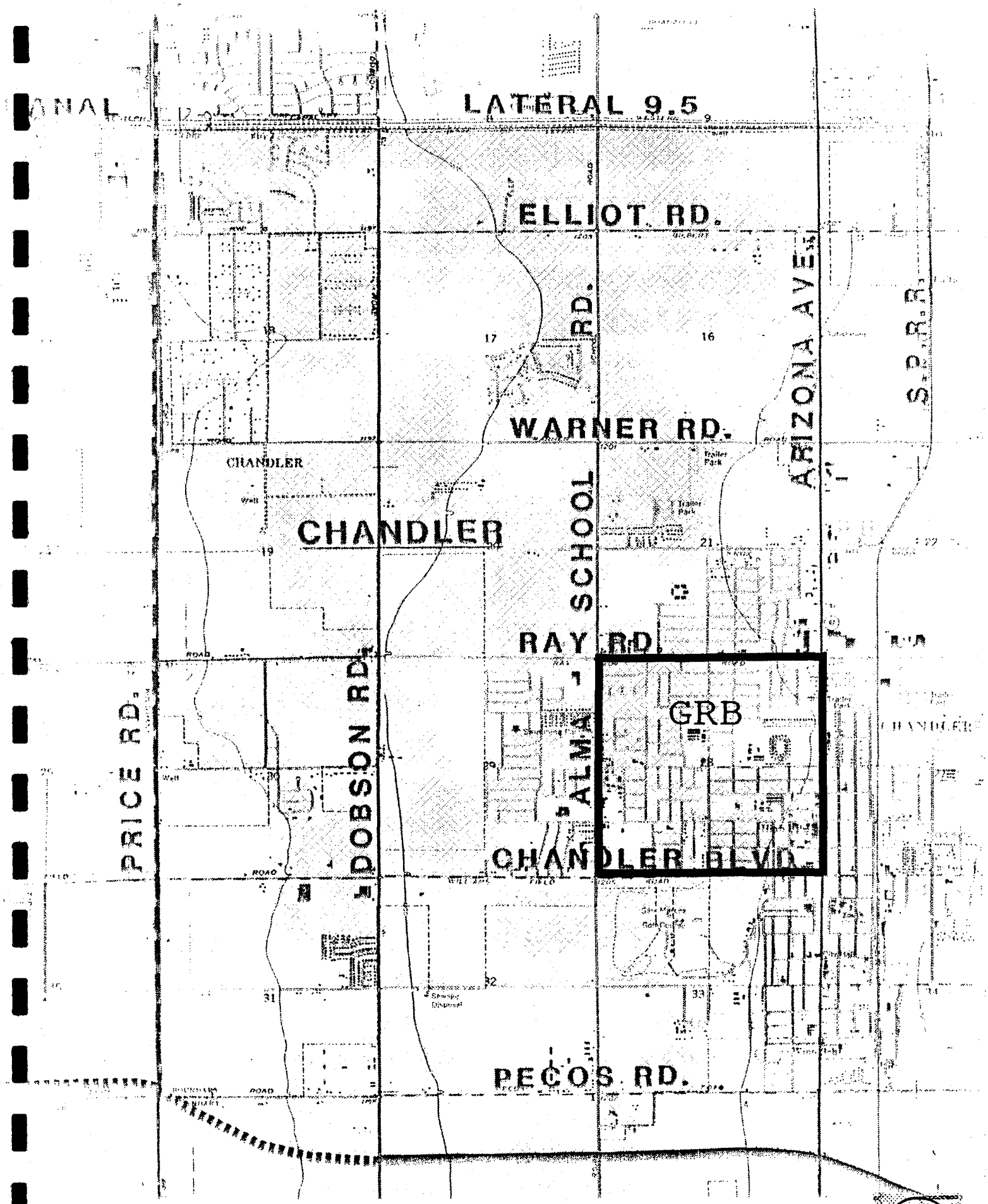
ROUTED TO	RARO	348.	13.67	134.	40.	38.	1.45

OPT21



Runoff Hydrographs for Drainage Subarea AR

OPT21


ANAL
LATERAL 9.5
ELLIOT RD.
ARIZONA AVE
S.P.R.R.
RD.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
GRB
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT28

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 28   <GRB.DAT>
  2           ID        Flows to Galveston Regional Basin
  3           ID        ~~Initial abstration used to represent retention~~ in Galveston Basin Moorao -
  4           ID        100-Year 24-Hour Storm - June 2,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK    GRB1
  8           KM        Runoff from Alma Ray and T-bird 1-4
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.125
 11           LS          . 84.6
 12           UD    0.55

 13           KK   RGRB1
 14           KM        Route RGB1 outflow to RGB2
 15           RK     700  0.0010   0.016            TRAP     0.0    25.0

 16           KK    GRB2
 17           KM        Runoff from T-Bird Manor I,II,& III
 18           BA   0.125
 19           LS            85.4
 20           UD    0.55

 21           KK   RGRB2
 22           KM        Route GRB2 flows to RGRB1
 23           RK    2800  0.0012   0.016            TRAP     0.0    25.0

 24           KK   CGRB2
 25           KM        Combine hydrographs from RGRB2 and RGRB1
 26           HC       2

 27           KK  RCGRB2
 28           KM        Route combined flows from CGRB2 to GRB3
 29           RK     550  0.0010   0.016            TRAP     0.0    25.0

 30           KK    GRB3
 31           KM        Runoff from Vance Addition, Hartford Estates, & Basha Elem School
 32           BA   0.125
 33           LS            83.7
 34           UD    0.59

 35           KK   RGRB3
 36           KM        Route flows to GRB4
 37           RK    3100  0.0011   0.016            TRAP     0.0    25.0

 38           KK   CGRB3
 39           KM        Combine hydrographs from RCGRB2 and RGRB3
 40           HC       2
```

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

  41          KK    GRB4
  42          KM        Runoff from Sunny Crest I-IV, Serene Homes & Hartford School
  43          BA   0.125
  44          LS           83.5
  45          UD    0.57

  46          KK   CGRB4
  47          KM        Combine flows at Alma School CGRB3 and GRB4
  48          HC       2

  49          KK  RCGRB4
  50          KM        Route combined flows CGRB4 to Galveston and Alma School
  51          RK     650  0.0003   0.016            TRAP     0.0    25.0

  52          KK    GRB5
  53          KM       Runoff from Park Manor and Chandler School
  54          BA   0.125
  55          LS           82.6
  56          UD    0.48

  57          KK   RGRB5
  58          KM        Route GRB5 flows to GRB6
  59          RK    3400  0.0012   0.016            TRAP     0.0    25.0

  60          KK    GRB6
  61          KM        Runoff from Tyson, Westwood and Sunset Parks Manors & Chandler Corp. Cnt
  62          BA   0.125
  63          LS           83.7
  64          UD    0.62

  65          KK   CGRB6
  66          KM        Combine hydrographs from RGRB5 and GRB6
  67          HC       2

  68          KK   RGRB6
  69          KM        Route CGRB6 flows to GRB8
  70          RK    1350  0.0010   0.016            TRAP     0.0    25.0

  71          KK  CRGB6
  72          KM        Combine flows GRBR5 and RGRB6
  73          HC       2

  74          KK    GRB7
  75          KM        Runoff from Hoy Homes & Junior High School
  76          BA   0.125
  77          LS           83.8
  78          UD    0.50

  79          KK   RGRB7
  80          KM        Route GRB7 flows to GRB8 (Alma School and Galveston)
  81          RK    3300  0.0012   0.016            TRAP     0.0    25.0
```

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

 82           KK  CRGRB7
 83           KM        Combine flows at Alma School and Galveston RGRB7 and RCGRB4
 84           HC       2

 85           KK    GRB8
 86           KM        Runoff from Tyson Manor II & III, Carla Vista, and Tonapah Terrace
 87           BA   0.125
 88           LS            85.2
 89           UD    0.60

 90           KK   CGRB8
 91           KM        Combine flows at Alma School and Galveston
 92           HC       2

 93           KK  RCGRB8
 94           KM        Route CGRB8 flows to Galveston Regional Basin
 95           KO       1       2
 96           RK     500  0.0010   0.016            TRAP     0.0    25.0

 97           KK  RBGRB8
 98           KM        Route flows through Galveston Basin (first 35.2 ac. ft. into basin )
 99           KO       1       2
100           RS       1    STOR     0.0
101           SV     0.0    35.2    35.5    35.8    36.1    39.7    42.2
102           SQ     0.0     0.0    43.0    86.0   129.0   526.0  1000.0

103           KK  R2GRB8
104           KM        Route flows to Chandler and Arrowhead Dr.
105           RK    4400  0.0010   0.016            TRAP     0.0    50.0

106           KK   OPT28
107           KM        Optimized single basin for section 28
108           BA    1.00
109           LS    0.90   93.00
110           UD    0.75

111           KK  RBOPT8
112           KM        Route flows through Galveston Basin (first 35.2 ac. ft. into basin)
113           KO       1       2
114           RS       1    STOR     0.0
115           SV     0.0    35.2    35.5    35.8    36.1    39.7    42.2
116           SQ     0.0     0.0    43.0    86.0   129.0   526.0  1000.0

117           KK  ROPT11
118           KM        Route optimized single basin to Chandler and Arrowhead Dr.
119           KO       1       2
120           RK    4400  0.0010   0.016            TRAP     0.0    50.0
121           ZZ
```

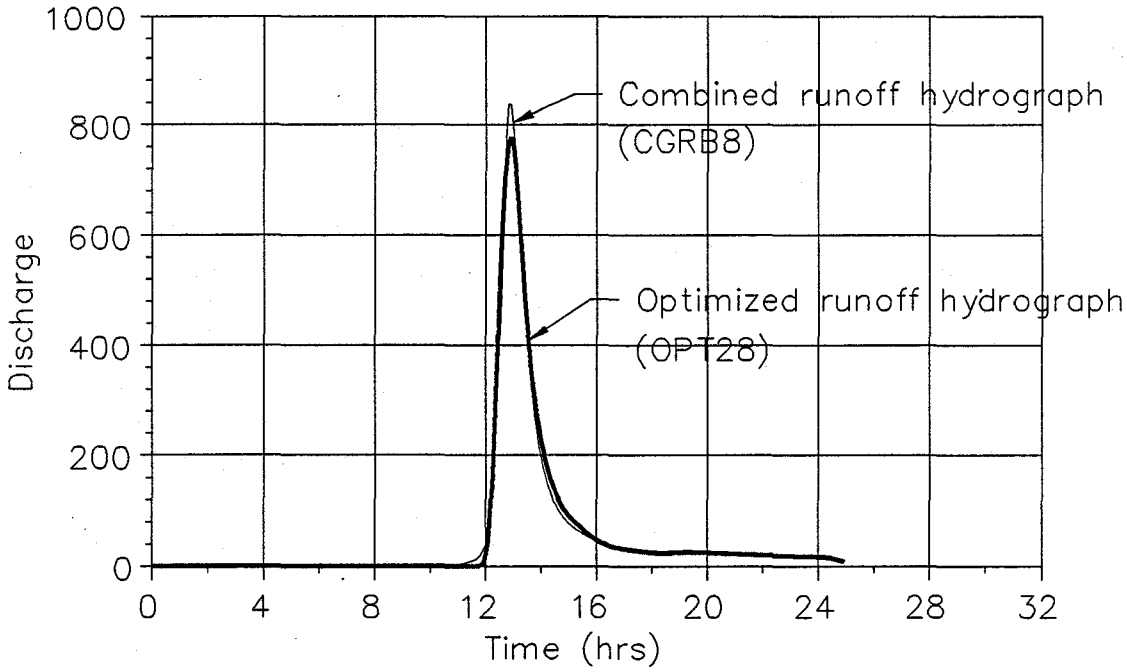
OPT28

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

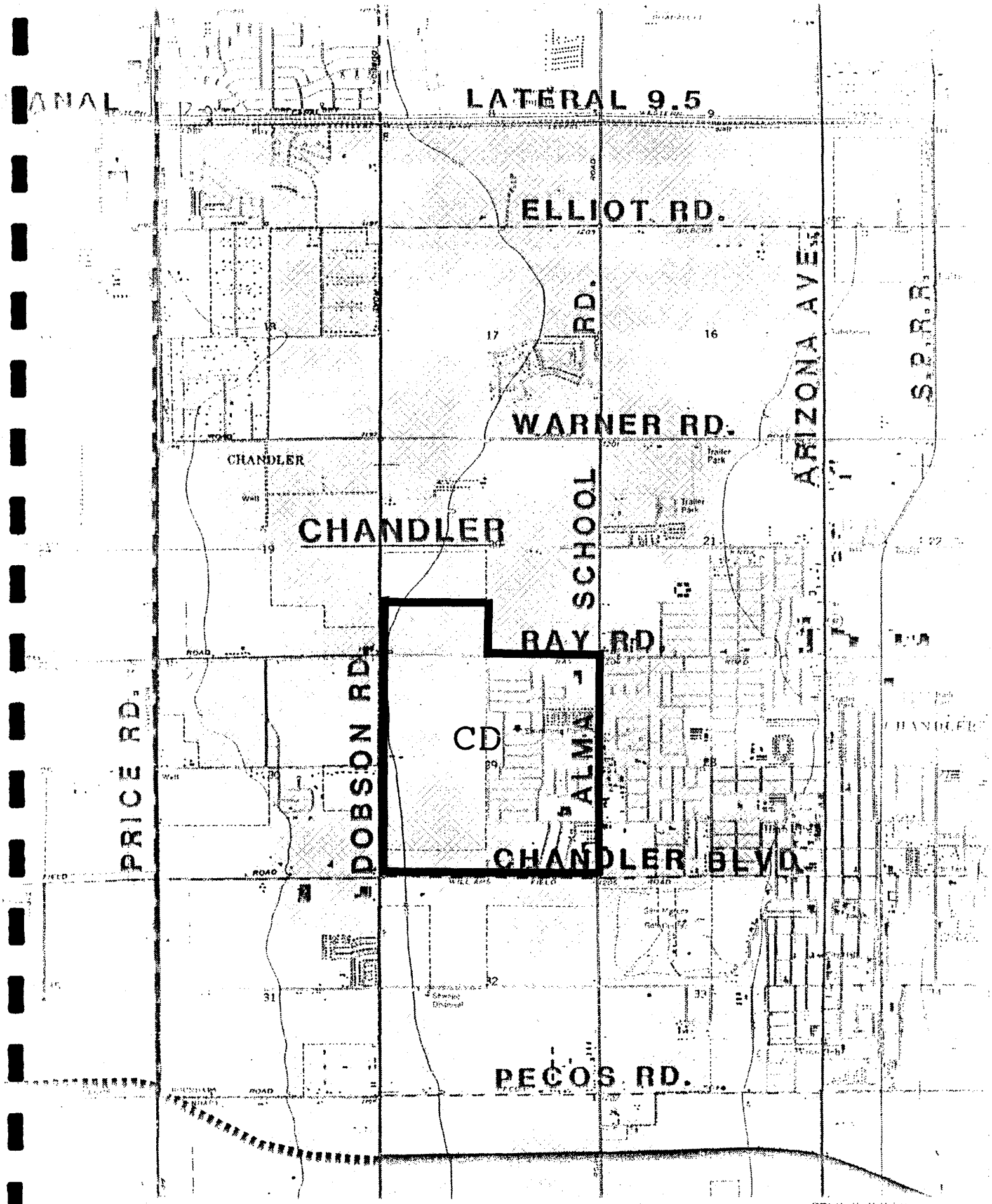
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	GRB1	113.	12.67	24.	7.	7.	.13		
ROUTED TO	RGRB1	112.	12.67	24.	7.	7.	.13		
HYDROGRAPH AT	GRB2	116.	12.67	25.	7.	7.	.13		
ROUTED TO	RGRB2	115.	12.83	25.	7.	7.	.13		
2 COMBINED AT	CGRB2	222.	12.83	49.	14.	13.	.25		
ROUTED TO	RCGRB2	222.	12.83	49.	14.	13.	.25		
HYDROGRAPH AT	GRB3	104.	12.67	23.	7.	6.	.13		
ROUTED TO	RGRB3	103.	13.00	23.	7.	6.	.13		
2 COMBINED AT	CGRB3	320.	12.83	72.	20.	20.	.38		
HYDROGRAPH AT	GRB4	106.	12.67	23.	7.	6.	.13		
2 COMBINED AT	CGRB4	419.	12.83	95.	27.	26.	.50		
ROUTED TO	RCGRB4	415.	12.92	95.	27.	26.	.50		
HYDROGRAPH AT	GRB5	112.	12.58	22.	6.	6.	.13		
ROUTED TO	RGRB5	112.	12.83	22.	6.	6.	.13		
HYDROGRAPH AT	GRB6	101.	12.75	23.	7.	6.	.13		
2 COMBINED AT	CGRB6	210.	12.83	45.	13.	12.	.25		
ROUTED TO	RGRB6	210.	12.92	45.	13.	12.	.25		
2 COMBINED AT	CRGB6	625.	12.92	140.	39.	38.	.75		
HYDROGRAPH AT	GRB7	115.	12.58	23.	7.	6.	.13		
ROUTED TO	RGRB7	115.	12.83	23.	7.	6.	.13		
2 COMBINED AT	CRGRB7	739.	12.92	163.	46.	44.	.88		
HYDROGRAPH AT	GRB8	109.	12.67	25.	7.	7.	.13		
2 COMBINED AT	CGRB8	838.	12.83	188.	53.	51.	1.00		
ROUTED TO									

OPT28

	RCGRB8	836.	12.92	188.	53.	51.	1.00
ROUTED TO	RBGRB8	646.	13.25	122.	35.	34.	1.00
ROUTED TO	R2GRB8	646.	13.50	118.	34.	33.	1.00
HYDROGRAPH AT	OPT28	777.	12.92	197.	55.	53.	1.00
ROUTED TO	RBOPT8	640.	13.25	130.	38.	36.	1.00
ROUTED TO	ROPT11	638.	13.50	127.	37.	35.	1.00



Runoff Hydrographs for Drainage Subarea GRB



DPT29A DPT29B

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 29   <CD.DAT>
  2           ID        Flows to Chandler and Dobson Roads - Arrowhead Basin Modeled
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 2,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK     CD1
  8           KM        Runoff from Bashas and Alma School and Ray Road
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.041
 11           LS    1.54    91.2
 12           UD    0.48

 13           KK    RCD1
 14           KM        Route CD1 outflow to CD2
 15           RK    2550  0.0007   0.016            TRAP     0.0    25.0

 16           KK     CD2
 17           KM        Runoff from Colonia Granada
 18           BA   0.068
 19           LS    2.04      84
 20           UD    0.40

 21           KK    CCD2
 22           KM        Combine hydrographs from CCD2 and RCD1
 23           HC       2

 24           KK    RCD2
 25           KM        Route combined flows from CCD2 to CD3
 26           RK    1500  0.0007   0.016            TRAP     0.0    25.0

 27           KK     CD3
 28           KM        Runoff from Karen Manor, Villa Hacienda & Clinch Estates
 29           BA   0.133
 30           LS    0.95      84
 31           UD    0.68

 32           KK    CCD3
 33           KM        Combine hydrographs from RCD2 and CD3
 34           HC       2

 35           KK    RCD3
 36           KM        Route combinded hydrographs to CD4
 37           RK    1600  0.0007   0.016            TRAP     0.0    25.0

 38           KK     CD4
 39           KM        Runoff from Central Estates I-V, Erie School
 40           BA   0.122
 41           LS           83.1
 42           UD    0.58
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OPT29A OPT29B

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

  43          KK    CCD4
  44          KM        Combine flows into No. end of Arrowhead Basin
  45          HC       2

  46          KK     CD5
  47          KM        Runoff from Chandler Centre & Arrowhead Meadows I & II
  48          BA   0.055
  49          LS            87.3
  50          UD    0.37

  51          KK    RCD5
  52          KM        Route flows from CD4 to Arrowhead Basin
  53          RK    1650  0.0021   0.016            TRAP     0.0    25.0

  54          KK     CD6
  55          KM        Runoff from Arrowhead Meadows and Arrowhead School
  56          BA   0.070
  57          LS            74.2
  58          UD    0.47

  59          KK    CCD6
  60          KM        Combine hydrographs from west into Arrowhead Basin
  61          HC       2

  62          KK   C2CD6
  63          KM        Combine total inflow into Arrowhead Basin
  64          KO       1       2
  65          HC       2

  66          KK  RC2CD6
  67          KM        Route flows through Arrowhead Basin (first 25 ac.ft. into basin)
  68          KO       1       2
  69          RS       1    STOR     0.0
  70          SV     0.0    25.0   25.30   25.60   25.90   29.50   32.00
  71          SQ     0.0     0.0    43.0    86.0   129.0   526.0  1000.0

  72          KK    RCD6
  73          KM        Route C2CD6 flows to Anderson Springs Blvd.
  74          RK     800  0.0013   0.016            TRAP     0.0    25.0

  75          KK     CD7
  76          KM        Runoff from Hamilton Homes & Lakeside Villas 8A & 8B
  77          BA   0.119
  78          LS    3.00      88
  79          UD    0.34

  80          KK     CD8
  81          KM        Runoff from Lakeside Villas 3A & 3B and 4-7
  82          BA   0.151
  83          LS    3.00      88
  84          UD    0.42
```

DPT29A DPT29B

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

 85           KK     CD9
 86           KM        Runoff from Lakeside Villas 11,12,& 14
 87           BA   0.053
 88           LS    3.00      88
 89           UD    0.33

 90           KK    CCD9
 91           KM        Combine flows at the lakes in CD8 & CD9
 92           HC       2

 93           KK   RCCD9
 94           KM        Route combined flows along roadway to Basin in CD7
 95           RK     950   0.001   0.016            TRAP     0.0    50.0

 96           KK    CCD9
 97           KM        Combine flows at Basin in CD7
 98           HC       2

 99           KK   RCCD9
100           KM        Route CCD9 flows through basin in CD10
101           RK    2000  0.0005   0.030            TRAP    50.0     5.0

102           KK    CD10
103           KM        Runoff from Hamilton 9A & 10A and No. 9B and 10B
104           BA   0.153
105           LS    3.00      88
106           UD    0.48

107           KK   CCD10
108           KM        Combine flows in Basin in CD10
109           HC       2

110           KK  RCCD10
111           KM        Route flows to Anderson Springs Blvd.
112           RK     900  0.0005   0.030            TRAP    50.0     5.0

113           KK    CD11
114           KM        Runoff from Hamilton 15-17, and So. 9B
115           BA   0.063
116           LS    3.00      88
117           UD    0.37

118           KK   CCD11
119           KM        Combine flows at Anderson Springs Blvd.
120           HC       2

121           KK    CD12
122           KM        Runoff from Hamilton 13 and 10B (So.)
123           BA   0.094
124           LS    3.00    88.4
125           UD    0.33
```

DPT29A DPT29B

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

 126          KK   CCD12
 127          KM        Combine flows from Hamilton Dev. at Anderson Springs Blvd.
 128          HC       2

 129          KK  C2CD12
 130          KM        Combine flows (total) at Anderson Springs Blvd.
 131          KO       1       2      20
 132          HC       2

 133          KK  RCCD12
 134          KM        Route flows to Chandler and Dobson Roads
 135          KO       1       2      20
 136          RK    2300  0.0024   0.016            TRAP     0.0    50.0

 137          KK   OPT29
 138          KM        Optimized Arrowhead Basin inflow for section 29
 139          KO       1       2
 140          BA    0.49
 141          LS    1.28   90.40
 142          UD    0.63

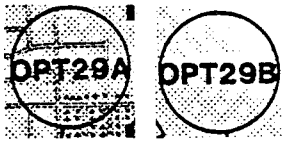
 143          KK  RC2CD6
 144          KM        Route flows through Arrowhead Basin (first 25 ac.ft. into basin)
 145          KO       1       2
 146          RS       1    STOR     0.0
 147          SV     0.0    25.0   25.30   25.60   25.90   29.50   32.00
 148          SQ     0.0     0.0    43.0    86.0   129.0   526.0  1000.0

 149          KK    RCD6
 150          KM        Route C2CD6 flows to Anderson Springs Blvd.
 151          RK     800  0.0013   0.016            TRAP     0.0    25.0

 152          KK  OPT29B
 153          KM        Runoff from Downstream of Arrowhead Basin
 154          BA    0.63
 155          LS    2.30    54.9
 156          UD    2.90

 157          KK   COM29
 158          KM        Combine flows at Anderson Springs Blvd.
 159          KO       1       2
 160          HC       2

 161          KK  C2CD12
 162          KM        Route flows to Chandler and Dobson Roads
 163          KO       1       2
 164          RK    2300  0.0024   0.016            TRAP     0.0    50.0
 165          ZZ
```

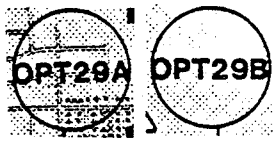


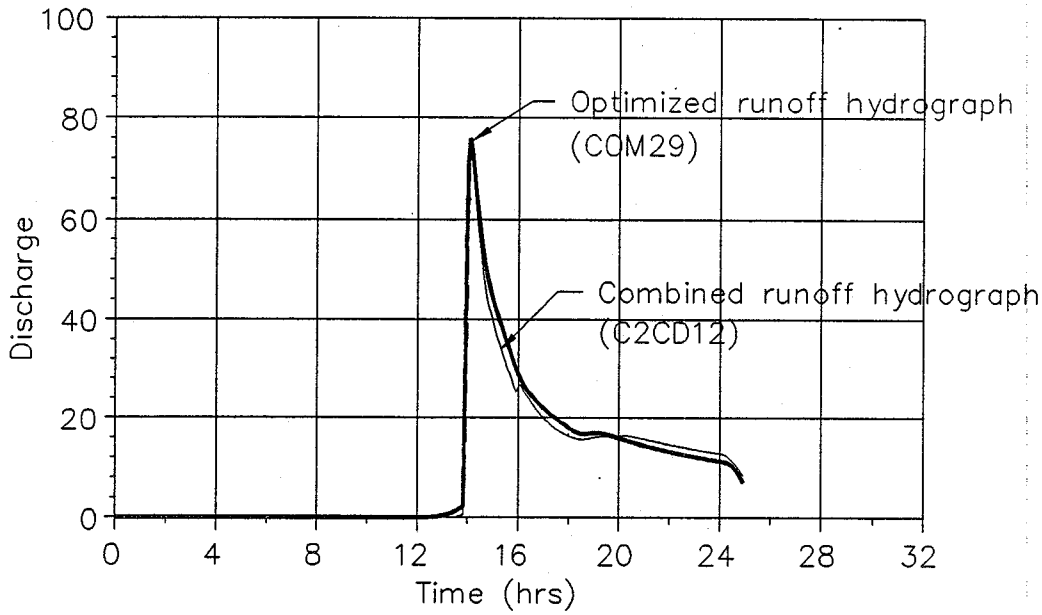
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	CD1	24.	12.75	5.	1.	1.	.04		
ROUTED TO	RCD1	24.	13.08	5.	1.	1.	.04		
HYDROGRAPH AT	CD2	15.	12.75	4.	1.	1.	.07		
2 COMBINED AT	CCD2	35.	13.00	9.	3.	3.	.11		
ROUTED TO	RCD2	34.	13.25	9.	3.	3.	.11		
HYDROGRAPH AT	CD3	75.	12.83	19.	5.	5.	.13		
2 COMBINED AT	CCD3	95.	13.08	27.	8.	8.	.24		
ROUTED TO	RCD3	95.	13.25	27.	8.	8.	.24		
HYDROGRAPH AT	CD4	100.	12.67	22.	6.	6.	.12		
2 COMBINED AT	CCD4	167.	12.92	49.	14.	14.	.36		
HYDROGRAPH AT	CD5	68.	12.42	12.	3.	3.	.05		
ROUTED TO	RCD5	68.	12.58	12.	3.	3.	.05		
HYDROGRAPH AT	CD6	42.	12.58	8.	2.	2.	.07		
2 COMBINED AT	CCD6	110.	12.58	20.	6.	6.	.13		
2 COMBINED AT	C2CD6	254.	12.75	69.	20.	19.	.49		
ROUTED TO	RC2CD6	73.	14.00	22.	7.	7.	.49		
ROUTED TO	RCD6	73.	14.08	22.	7.	7.	.49		
HYDROGRAPH AT	CD7	2.	15.08	1.	1.	0.	.12		
HYDROGRAPH AT	CD8	2.	15.17	2.	1.	1.	.15		
HYDROGRAPH AT	CD9	1.	15.08	1.	0.	0.	.05		
2 COMBINED AT	CCD9	3.	15.17	2.	1.	1.	.20		
ROUTED TO	RCCD9	3.	15.33	2.	1.	1.	.20		
2 COMBINED AT	CCD9	4.	15.25	3.	1.	1.	.32		
ROUTED TO	RCCD9	4.	16.08	3.	1.	1.	.32		
HYDROGRAPH AT	CD10	2.	15.25	2.	1.	1.	.15		
2 COMBINED AT	CCD10	6.	16.08	5.	2.	2.	.48		
ROUTED TO	RCCD10	6.	16.42	5.	2.	2.	.48		
HYDROGRAPH AT	CD11	1.	15.08	1.	0.	0.	.06		
2 COMBINED AT	CCD11	6.	16.33	5.	2.	2.	.54		
HYDROGRAPH AT	CD12	1.	15.08	1.	0.	0.	.09		
2 COMBINED AT	CCD12	7.	16.33	6.	2.	2.	.63		
2 COMBINED AT	C2CD12	74.	14.08	27.	10.	9.	1.12		
ROUTED TO	RCCD12	73.	14.25	27.	10.	9.	1.12		
HYDROGRAPH AT	OPT29	293.	12.83	71.	20.	20.	.49		
ROUTED TO	RC2CD6	73.	14.00	23.	8.	7.	.49		
ROUTED TO	RCD6	73.	14.08	23.	8.	7.	.49		

OPT29A OPT29B

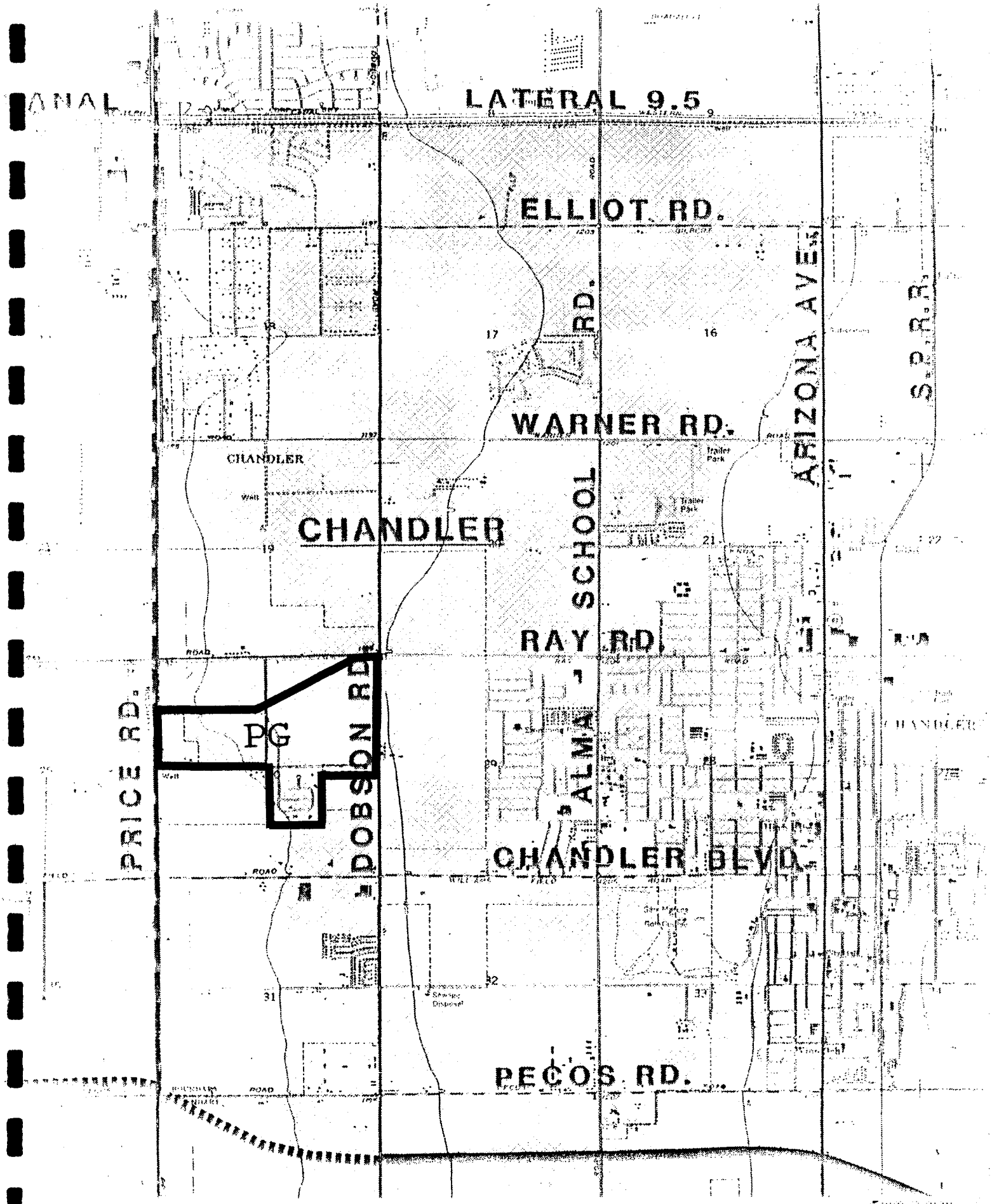
HYDROGRAPH AT	OPT29B	8.	16.42	6.	2.	2.	.63
2 COMBINED AT	COM29	76.	14.08	29.	10.	10.	1.12
ROUTED TO	C2CD12	75.	14.25	29.	10.	10.	1.12





Runoff Hydrographs for Drainage Subarea CD

DPT29A DPT29B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RD.
ARIZONA AVE.
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
PG
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PECOS RD.

OPT30A

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

  1           ID        Price Road Offsite Hydrology-Model For Part Sec. 30  <PG>
  2           ID        Flows to Price and Galveston
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1, 1989  HDR - PHX
              *DIAGRAM
  5           IT      5                    300
  6           IN     30
  7           IO      3       0       0

  8           KK     PG1
  9           KM        Runoff from PAD - part Ray Ranch (undeveloped)
 10           PH      1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 11           BA  0.071
 12           LS             83
 13           UD   0.75

 14           KK   RPG1A
 15           KM        Route PG1 runoff hydrograph to Galveston St.
 16           RK   1100  0.0015    0.03            TRAP     2.0     3.0

 17           KK   RPG1B
 18           KM        Route PG1 runoff hydrograph to bot. of PG3 (Bull Moose and Galveston)
 19           RK    750   0.003    .016            TRAP       0      50

 20           KK     PG2
 21           KM        Runoff from La Glorieta
 22           BA  0.060
 23           LS   3.00      70
 24           UD   0.32

 25           KK    RPG2
 26           KM        Route PG2 hydrograph to bot. of PG3 (Bull Moose and Galveston)
 27           RK   1400   0.003    .016            TRAP     0.0    25.0

 28           KK     PG3
 29           KM        Runoff from The Homestead
 30           KM        1.5" initial abst. assumed for individual lots with on-site retention
 31           BA  0.074
 32           LS    1.5      68
 33           UD   0.45

 34           KK     PG4
 35           KM        Runoff from Central Ridge, Indian Ridge and Indian Mesa Estates
 36           KM        1.5" initial abst. assumed for individual lots with on-site retention
 37           BA  0.110
 38           LS    1.5      68
 39           UD    .52

 40           KK    CPG4
 41           KM        Combine hydrographs PG1 thru PG4 at Bull Moose and Galveston
 42           HC      4
```

OPT30A

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

  43          KK    RPG4
  44          KM        Route comb. hydrographs PG1/PG4 to corner of Price and Galveston
  45          RK    2800  0.0010    .016            TRAP     0.0    50.0

  46          KK     PG5
  47          KM        Runoff from undeveloped area
  48          BA   0.080
  49          LS    0.6      82
  50          UD    .65

  51          KK    CPG5
  52          KM        Combine All PG1 thru PG5 hydrographs at Basin "G" location
  53          HC      2
  54          KO      1       2      20

  55          KK     PGO
  56          KM        Optimized combined hydrograph for PG1 thru PG5
  57          BA    0.39
  58          LS    0.60    63.1
  59          UD    0.90
  60          KO      1       2      20
  61          ZZ
```
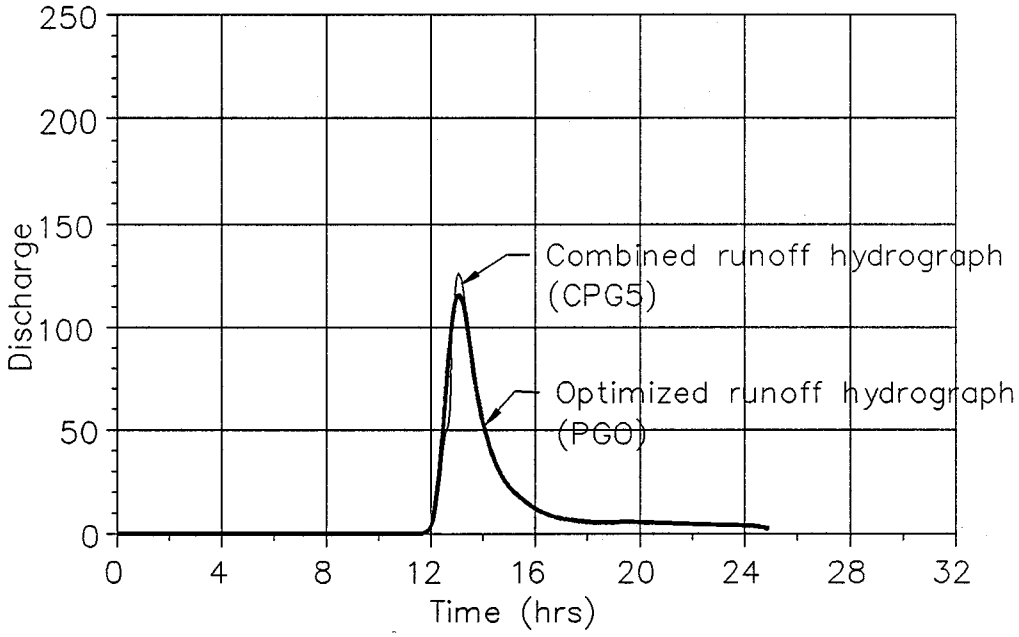

OPT30A

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

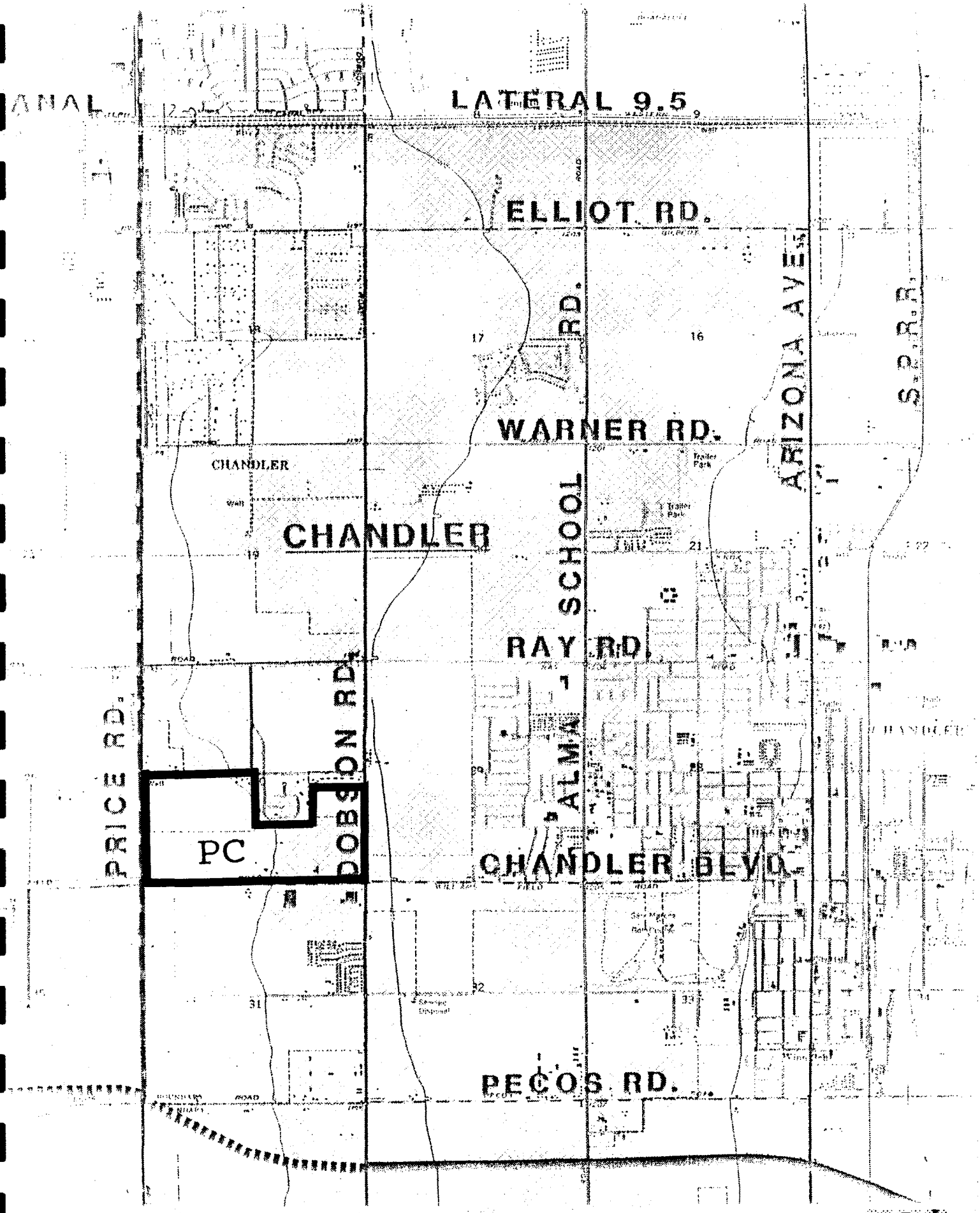
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	PG1	49.	12.83	13.	4.	3.	.07		
ROUTED TO	RPG1A	49.	13.00	13.	4.	3.	.07		
ROUTED TO	RPG1B	49.	13.00	13.	4.	3.	.07		
HYDROGRAPH AT	PG2	0.	15.08	0.	0.	0.	.06		
ROUTED TO	RPG2	0.	15.42	0.	0.	0.	.06		
HYDROGRAPH AT	PG3	17.	12.67	4.	1.	1.	.07		
HYDROGRAPH AT	PG4	24.	12.75	6.	2.	2.	.11		
4 COMBINED AT	CPG4	85.	12.83	23.	7.	7.	.31		
ROUTED TO	RPG4	85.	13.17	23.	7.	6.	.31		
HYDROGRAPH AT	PG5	54.	12.75	13.	4.	3.	.08		
2 COMBINED AT	CPG5	127.	13.08	35.	10.	10.	.39		
HYDROGRAPH AT	PGO	116.	13.08	36.	10.	10.	.39		

OPT30A



Runoff Hydrographs for Drainage Subarea PG

OPT30A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ELLIOT RD.
ARIZONA AVE
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL RD.
RAY RD.
ALMA
DOBSON RD.
PRICE RD.
PC
CHANDLER BLVD.
PECOS RD.
17
16
19
21
29
28
31
32
33

OPT308

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

  1           ID        Price Road Offsite Hydrology-Model For Part Sec. 30 S1/2 <PC>
  2           ID        Flows to Price and Chandler Blvd.
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm -June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT      5                    300
  6           IN     30
  7           IO      3       0       0

  8           KK     PC1
  9           KM        Runoff from Homeplace I, II, III
 10           PH      1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 11           BA  0.066
 12           LS   2.60      84
 13           UD   0.34

 14           KK    RPC1
 15           KM        Route PC1 runoff hydrograph to Chandler Blvd.
 16           RK    750  0.0013    .016            TRAP     0.0    50.0

 17           KK     PC2
 18           KM        Runoff from The Boulevard Centre
 19           BA  0.027
 20           LS   2.00      92
 21           UD   0.53

 22           KK    CPC2
 23           KM        Combine PC1 and PC2 hydrographs
 24           HC      2

 25           KK    RPC2
 26           KM        Route comb. hydrographs PC1/PC2 to bottom of PC3
 27           RK   1500  0.0018    .016            TRAP     0.0    50.0

 28           KK     PC3
 29           KM        Runoff from PAD (undeveloped area)
 30           BA  0.065
 31           LS             83
 32           UD    .63

 33           KK    CPC3
 34           KM        Combine PC1 thru PC3 hydrographs
 35           HC      2

 36           KK    RPC3
 37           KM        Route combined hydrograph to Price and Chandler
 38           RK   2400  0.0017    .016            TRAP     0.0    50.0

 39           KK     PC4
 40           KM        Runoff from Ag land
 41           BA   .125
 42           LS    1.5      81
 43           UD    .80
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  44          KK    RPC4
  45          KM        Route PC4 hydrographs to Price and Chandler
  46          RK    1300  0.0025    .016           TRAP     0.0    50.0

  47          KK     PC5
  48          KM        Runoff from Price Estates (Ag, undeveloped)
  49          BA    .125
  50          LS     1.5      81
  51          UD     .80

  52          KK    CPC5
  53          KM        Combine all hydrographs PC1 thru PC5
  54          HC       3
  55          KO       1       2      20

  56          KK     PCO
  57          KM        Optimized combined hydrograph for PC1 thru PC5
  58          BA    0.41
  59          LS    0.92    69.8
  60          UD    0.85
  61          KO       1       2      20
  62          ZZ
```
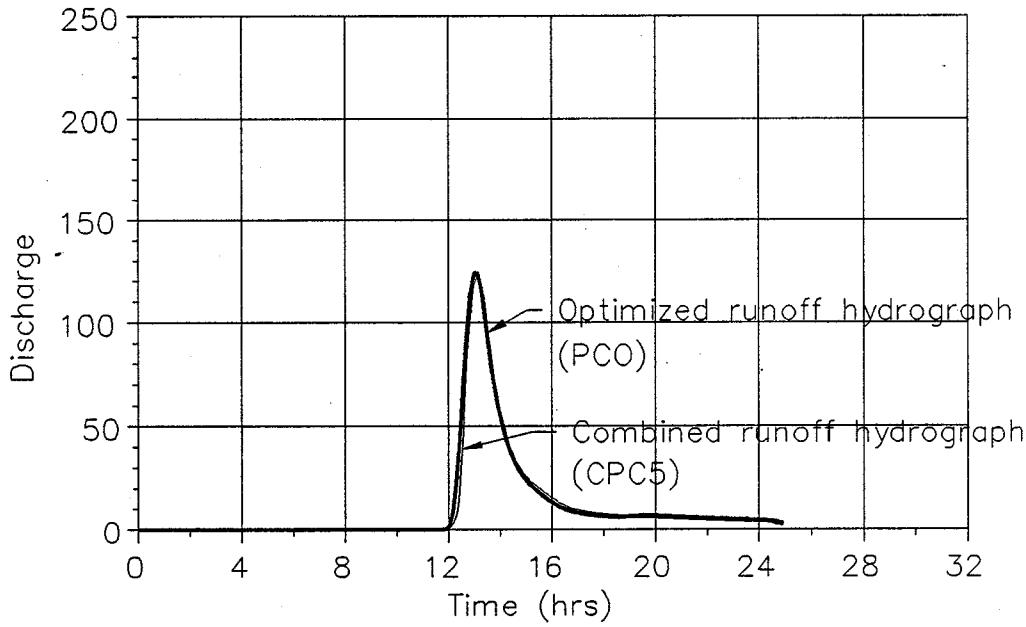
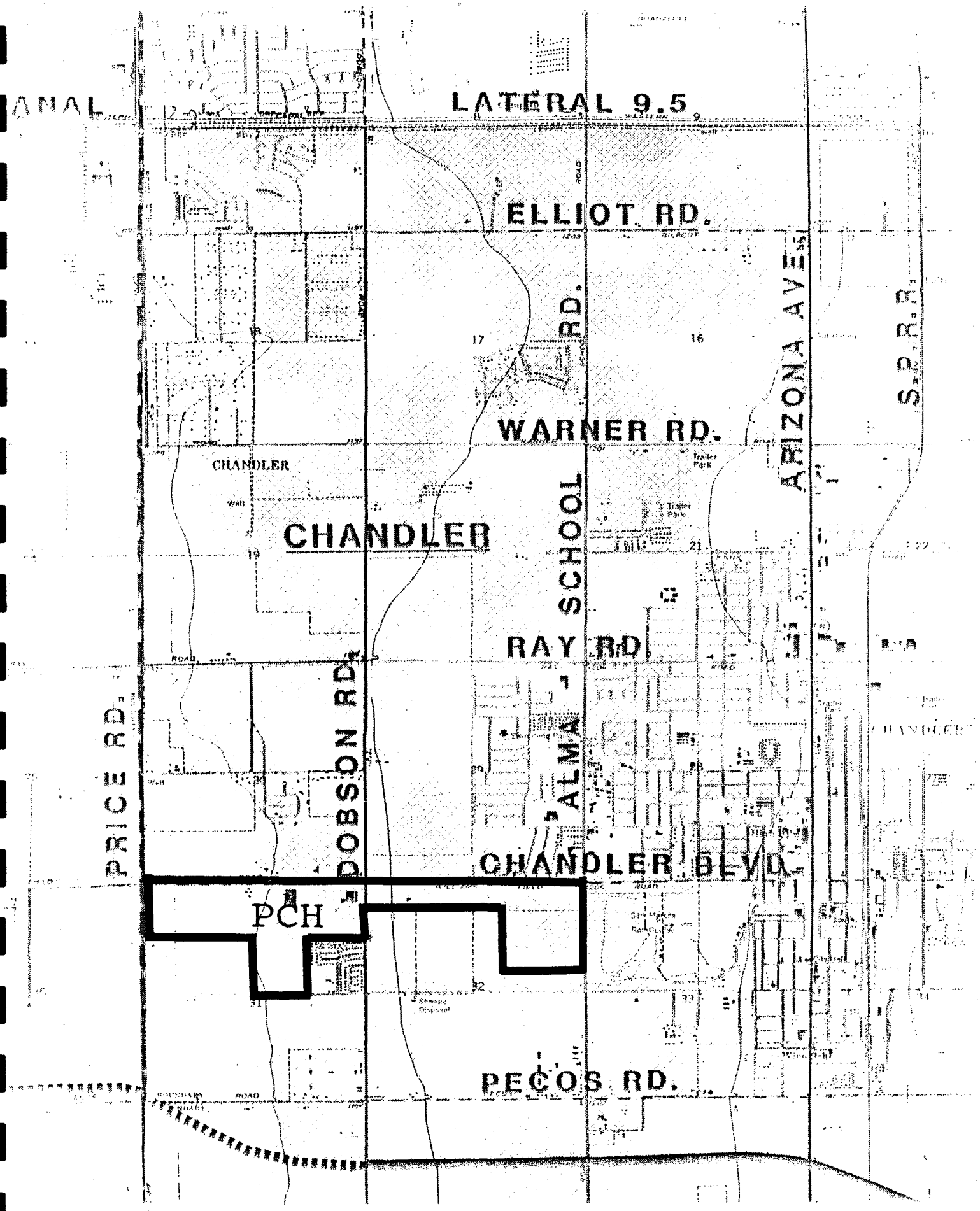

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	PC1	3.	13.00	2.	1.	1.	.07		
ROUTED TO	RPC1	3.	13.25	2.	1.	1.	.07		
HYDROGRAPH AT	PC2	9.	12.92	2.	1.	1.	.03		
2 COMBINED AT	CPC2	11.	13.00	4.	1.	1.	.09		
ROUTED TO	RPC2	11.	13.17	4.	1.	1.	.09		
HYDROGRAPH AT	PC3	51.	12.75	12.	3.	3.	.06		
2 COMBINED AT	CPC3	55.	12.83	15.	5.	4.	.16		
ROUTED TO	RPC3	55.	13.08	15.	5.	4.	.16		
HYDROGRAPH AT	PC4	34.	13.08	11.	3.	3.	.13		
ROUTED TO	RPC4	34.	13.25	11.	3.	3.	.13		
HYDROGRAPH AT	PC5	34.	13.08	11.	3.	3.	.13		
3 COMBINED AT	CPC5	121.	13.08	36.	11.	10.	.41		
HYDROGRAPH AT	PCO	124.	13.08	37.	11.	11.	.41		



Runoff Hydrographs for Drainage Subarea PC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RD.
ARIZONA AVE.
S.P.R.R.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PCH
PECOS RD.

DPT31A

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

  1           ID        Price Road Offsite Hydrology-Model For Part Sec. 31 N1/2 <PCH>
  2           ID        Flows to Price and Chandler Blvd., then routed to proposed Intx. Basin
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IN      30
  7           IO       3       0       0

  8           KK    PCH1
  9           KM        Runoff from PAD
 10           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 11           BA    .165
 12           LS    2.50      86
 13           UD     .68

 14           KK   RPCH1
 15           KM        Route PCH1 hyd. to bottom of PCH2
 16           RK    2300   .0025    .016            TRAP       0    25.0

 17           KK    PCH2
 18           KM        Runoff from PAD
 19           BA     .05
 20           LS    2.50      86
 21           UD     .43

 22           KK   CPCH2
 23           KM        Combine PCH1 and PCH2 runoff hydrographs
 24           HC       2

 25           KK   RPCH2
 26           KM        Route combined hydrographs to bottom of PCH3
 27           RK    2400   .0019    .016            TRAP       0    25.0

 28           KK    PCH3
 29           KM        Runoff from Rogers (plant) and PAD
 30           BA    0.09
 31           LS    2.50      88
 32           UD    0.83

 33           KK    PCH4
 34           KM        Runoff from General Instruments (plant)
 35           BA   0.090
 36           LS    2.50      88
 37           UD    0.83

 38           KK   CPCH4
 39           KM        Combine PCH1 thru PCH4 hydrographs
 40           HC       3
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DPT31A

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

  41          KK   RPCH4
  42          KM        Route comb. hydrographs PCH1 thru PCH4 to bottom of PCH5
  43          RK    2400  0.0010    .016            TRAP     0.0    25.0

  44          KK    PCH5
  45          KM        Runoff from Ag land (undeveloped area)
  46          BA   0.090
  47          LS     1.0      83
  48          UD     .74

  49          KK   CPCH5
  50          KM        Combine PCH1 thru PCH5 hydrographs
  51          HC       2

  52          KK   RPCH5
  53          KM        Route combined hydrographs PCH1 thru PCH5 to Price and Chandler Blvd.
  54          RK    1250  0.0020    .016            TRAP     0.0    25.0

  55          KK    PCH6
  56          KM        Runoff from Gould (plant)
  57          BA    .060
  58          LS     2.5      88
  59          UD     .60

  60          KK   CPCH6
  61          KM        Combine PCH1 thru PCH6 hydrographs
  62          HC       2

  63          KK   RPCH6
  64          KM        Route combined hydrographs to proposed Interchange Basin
  65          RK    3800  0.0015    .016            TRAP     0.0    25.0
  66          KO       1       2      20

  67          KK    PCHO
  68          KM        Optimized combined hydrograph for PCH1 thru PCH6
  69          BA    0.55
  70          LS    2.64    95.0
  71          UD    0.34

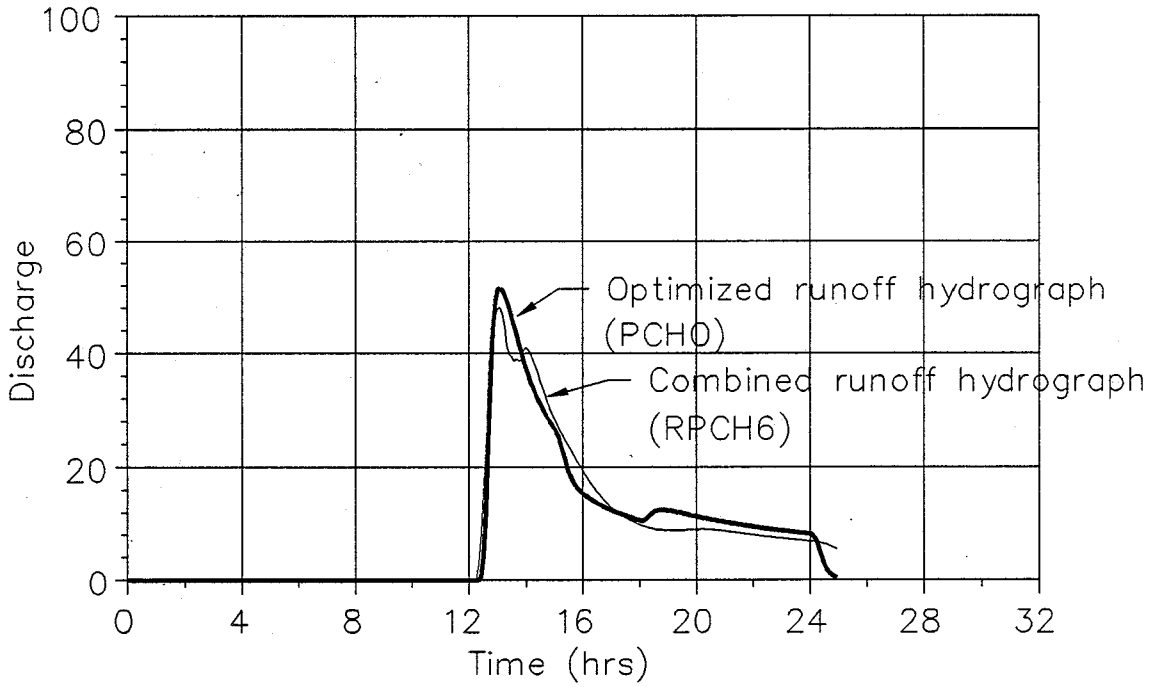
  72          KK   RPCHO
  73          KM        Route optimized hydrograph to proposed Interchange Basin
  74          RK    3800  0.0015    .016            TRAP     0.0    25.0
  75          KO       1       2      20
  76          ZZ
```

DPT31A

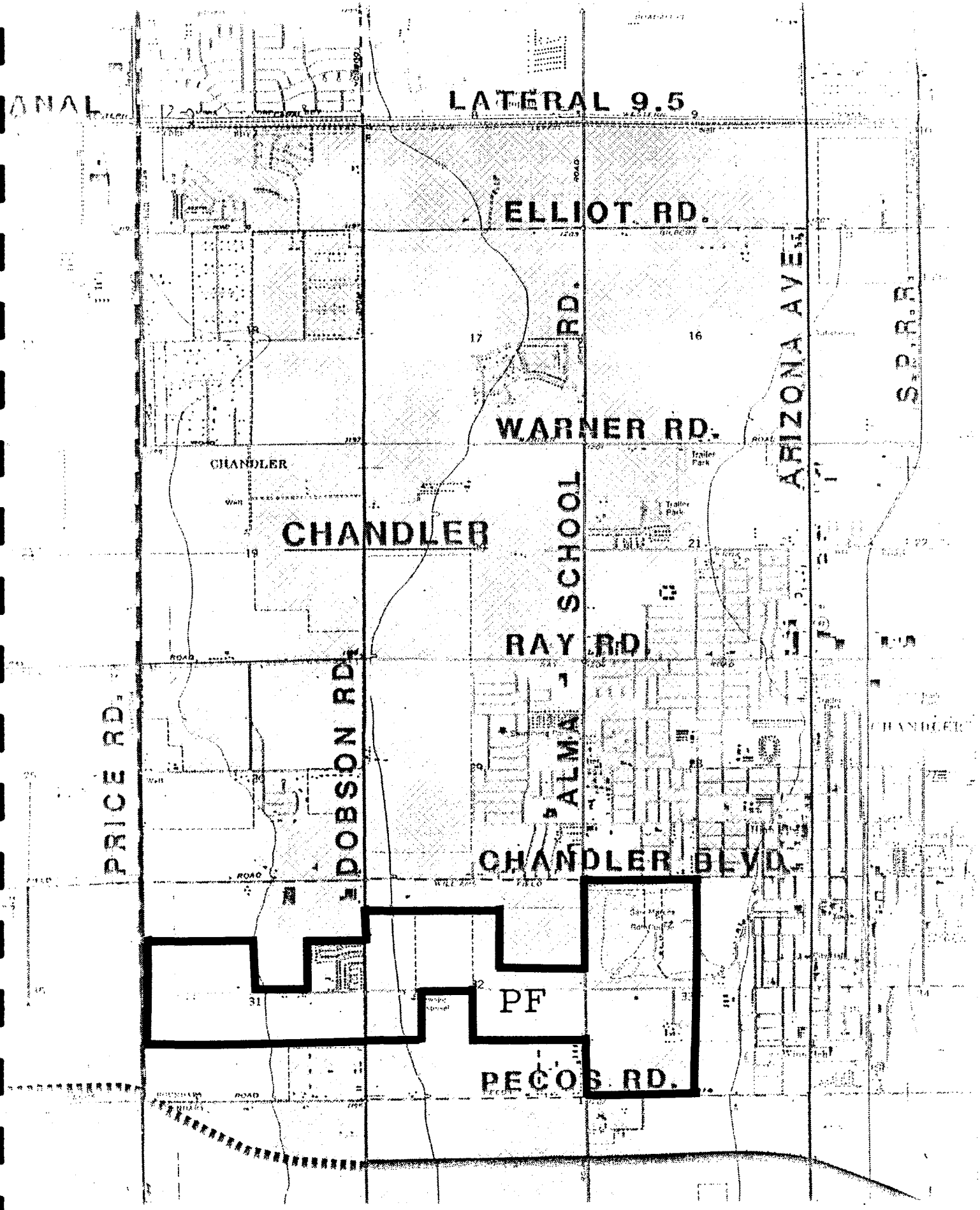
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	PCH1	10.	13.42	5.	2.	2.	.17		
ROUTED TO	RPCH1	10.	13.67	5.	2.	2.	.17		
HYDROGRAPH AT	PCH2	3.	13.00	2.	1.	1.	.05		
2 COMBINED AT	CPCH2	12.	13.67	6.	2.	2.	.22		
ROUTED TO	RPCH2	12.	13.92	6.	2.	2.	.22		
HYDROGRAPH AT	PCH3	6.	13.67	3.	1.	1.	.09		
HYDROGRAPH AT	PCH4	6.	13.67	3.	1.	1.	.09		
3 COMBINED AT	CPCH4	23.	13.83	12.	4.	4.	.40		
ROUTED TO	RPCH4	23.	14.17	12.	4.	4.	.40		
HYDROGRAPH AT	PCH5	44.	12.92	12.	3.	3.	.09		
2 COMBINED AT	CPCH5	44.	12.92	23.	8.	7.	.49		
ROUTED TO	RPCH5	44.	13.00	23.	8.	7.	.49		
HYDROGRAPH AT	PCH6	4.	13.33	2.	1.	1.	.06		
2 COMBINED AT	CPCH6	48.	13.08	25.	8.	8.	.55		
ROUTED TO	RPCH6	48.	13.42	25.	8.	8.	.55		
HYDROGRAPH AT	PCHO	51.	13.08	24.	9.	8.	.55		
ROUTED TO	RPCHO	51.	13.42	24.	8.	8.	.55		

OPT31A



Runoff Hydrographs for Drainage Subarea PCH


ANAL
LATERAL 9.5
ELLIOT RD.
WARNER RD.
CHANDLER
CHANDLER
RAY RD.
CHANDLER BLVD.
PECOS RD.
PRICE RD.
DOBSON RD.
ALMA SCHOOL RD.
ARIZONA AVE.
S.P.R.R.
PF

OPT318

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

  1           ID        Price Road Offsite Hydrology - Model For Secs. 31,32,33 <PF>
  2           ID        Flows to proposed Interchange Basin (from Frye Road)
  3           ID        Initial abstraction used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 1,1989   HDR - PHX
              *DIAGRAM
  5           IT      5                     300
  6           IO      3       0       0

  7           KK     PF1
  8           KM        Runoff from San Marcos Golf Course (NW1/4 Sec. 33)
  9           PH      1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.250
 11           LS    3.00      68
 12           UD    1.15

 13           KK    RPF1
 14           KM        Route PF1 outflow to bottom of PF3
 15           RK     700  0.0015   0.016            TRAP     0.0    25.0

 16           KK     PF2
 17           KM        Runoff from San Marcos Estates
 18           BA   0.125
 19           LS    3.00      84
 20           UD    0.47

 21           KK    RPF2
 22           KM        Route PF2 outflow to bottom of PF3
 23           RK    3100  0.0015   0.016            TRAP     0.0    25.0

 24           KK     PF3
 25           KM        Runoff from undeveloped area/Ag
 26           BA    0.16
 27           LS    0.67      82
 28           UD    1.19

 29           KK    CPF3
 30           KM        Combine hydrographs PF1 thru PF3
 31           HC      3

 32           KK    RPF3
 33           KM        Route combined flows to bottom of PF4
 34           RK    2000  0.0018   0.016            TRAP     0.0    50.0

 35           KK     PF4
 36           KM        Runoff from Crescent Village and part Maggio Ranch
 37           BA   0.150
 38           LS    2.50    84.7
 39           UD    0.47

 40           KK    CPF4
 41           KM        Combine hydrographs from PF1 thru PF4
 42           HC      2
```

OPT31E

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

  43          KK    RPF4
  44          KM        Route combined hydrograph to Dobson and Frye
  45          RK    2600  0.0018   0.016            TRAP     0.0    50.0

  46          KK     PF5
  47          KM        Runoff from portions of Kiviera Capital and Maggio Ranch
  48          BA   0.225
  49          LS    2.50      86
  50          UD    0.83

  51          KK     PF6
  52          KM        Runoff from Chandler Community Hospital
  53          BA   0.060
  54          LS    2.50      92
  55          UD    0.77

  56          KK    CPF6
  57          KM        Combine hydrographs PF1 thru PF6 at Dobson and Frye
  58          HC       3

  59          KK    RPF6
  60          KM        Route combined hydrograph to bottom of PF7
  61          RK    1300  0.0024   0.016            TRAP     0.0    50.0

  62          KK     PF7
  63          KM        Runoff from Green Valley Estates
  64          BA   0.060
  65          LS    3.00      84
  66          UD    0.40

  67          KK    CPF7
  68          KM        Combine PF1 thru PF7 hydrographs
  69          HC       2

  70          KK    RPF7
  71          KM        Route combined hydrographs to bottom of PF8
  72          RK    1300  0.0024    .016            TRAP     0.0    50.0

  73          KK     PF8
  74          KM        Runoff from partially developed area
  75          BA   0.125
  76          LS     0.6      84
  77          UD    0.86

  78          KK    CPF8
  79          KM        Combine PF1 thru PF8 hydrographs
  80          HC       2

  81          KK    RPF8
  82          KM        Route combined hydrograph to Price and Frye
  83          RK    2500  0.0025    .016            TRAP     0.0    50.0
```

DPT318

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

  84          KK     PF9
  85          KM        Runoff from partially developed area (South side of Frye)
  86          BA    .125
  87          LS    2.00      85
  88          UD     .86

  89          KK    PF10
  90          KM        Runoff from partially developed area (North side of Frye)
  91          BA    .125
  92          LS    1.75      85
  93          UD     .83

  94          KK   CPF10
  95          KM        Combine all hydrographs PF1 thru PF10 at Price and Frye
  96          HC       3

  97          KK   RPF10
  98          KM        Route combined hydrograph to proposed Interchange Basin
  99          RK    1000    .001    .016            TRAP     0.0    50.0
 100          KO       1       2      20

 101          KK     OPT
 102          KM        Optimized single basin for PF1 thru PF10
 103          BA    1.40
 104          LS    1.90  .  79.4
 105          UD    1.20

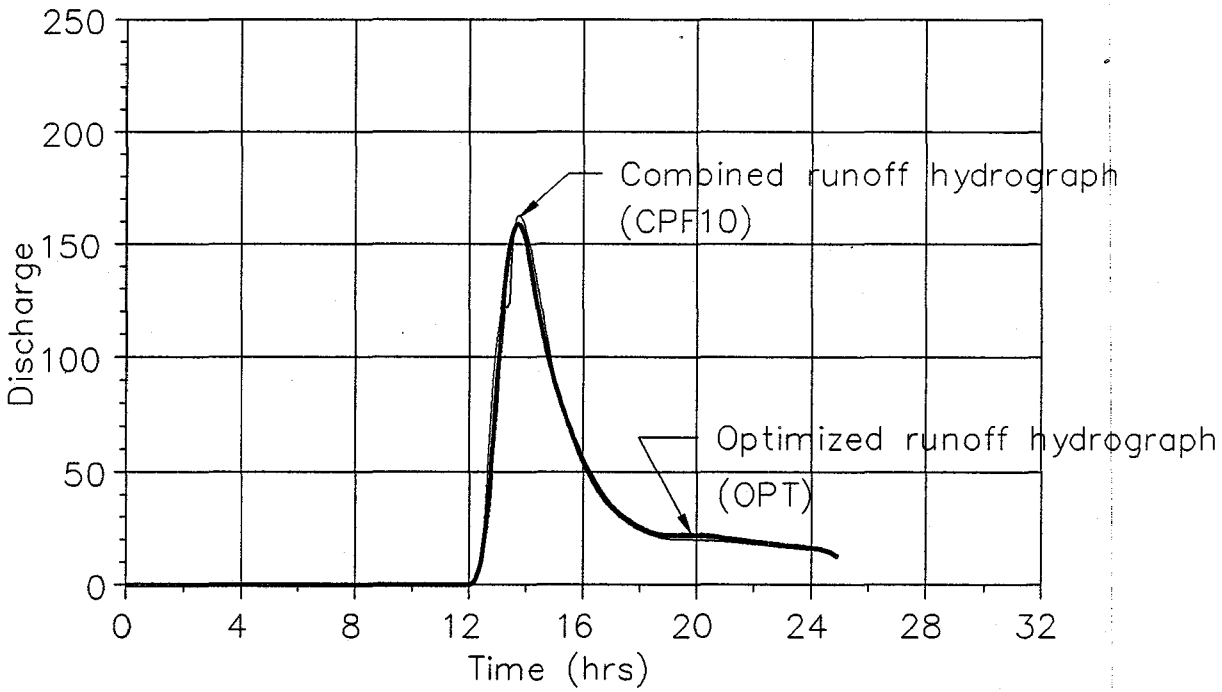
 106          KK    ROPT
 107          KM        Route optimized hydrograph to proposed Interchange Basin
 108          RK    1000    .001    .016            TRAP     0.0    50.0
 109          KO       1       2      20
 110          ZZ
```

OPT31E

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

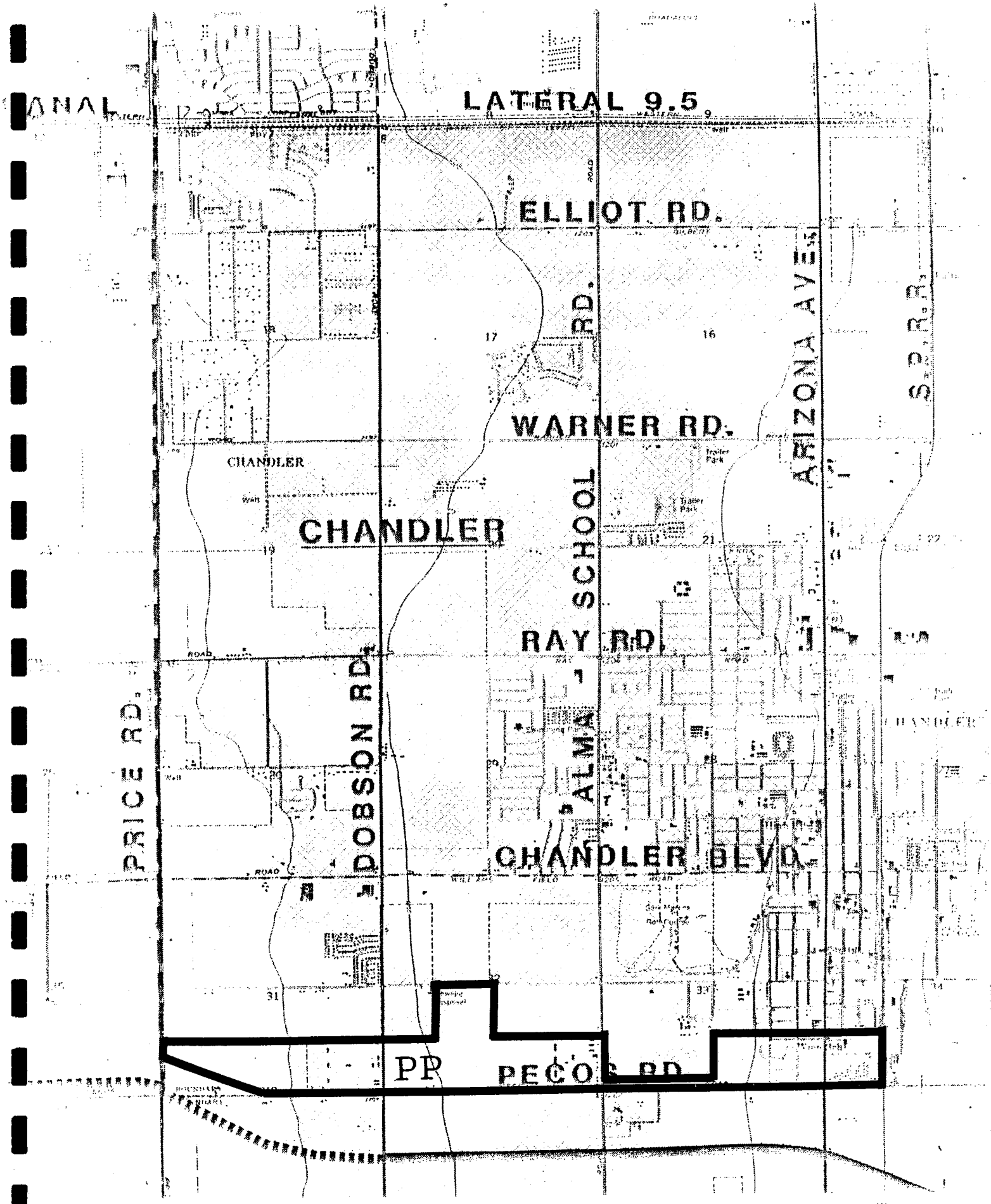
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	PF1	1.	20.58	1.	0.	0.	.25		
ROUTED TO	RPF1	1.	20.75	1.	0.	0.	.25		
HYDROGRAPH AT	PF2	1.	15.25	1.	0.	0.	.13		
ROUTED TO	RPF2	1.	15.92	1.	0.	0.	.13		
HYDROGRAPH AT	PF3	67.	13.33	24.	7.	7.	.16		
3 COMBINED AT	CPF3	67.	13.33	25.	8.	7.	.53		
ROUTED TO	RPF3	67.	13.58	25.	8.	7.	.53		
HYDROGRAPH AT	PF4	9.	13.08	4.	2.	1.	.15		
2 COMBINED AT	CPF4	75.	13.50	30.	9.	9.	.68		
ROUTED TO	RPF4	75.	13.75	30.	9.	9.	.68		
HYDROGRAPH AT	PF5	12.	13.67	7.	2.	2.	.22		
HYDROGRAPH AT	PF6	5.	13.50	3.	1.	1.	.06		
3 COMBINED AT	CPF6	92.	13.75	39.	12.	12.	.97		
ROUTED TO	RPF6	92.	13.83	39.	12.	12.	.97		
HYDROGRAPH AT	PF7	1.	15.17	0.	0.	0.	.06		
2 COMBINED AT	CPF7	92.	13.83	39.	13.	12.	1.03		
ROUTED TO	RPF7	92.	13.92	39.	12.	12.	1.03		
HYDROGRAPH AT	PF8	74.	13.00	21.	6.	6.	.13		
2 COMBINED AT	CPF8	128.	13.67	58.	18.	18.	1.15		
ROUTED TO	RPF8	128.	13.83	58.	18.	18.	1.15		
HYDROGRAPH AT	PF9	20.	13.33	8.	2.	2.	.13		
HYDROGRAPH AT	PF10	29.	13.17	10.	3.	3.	.13		
3 COMBINED AT	CPF10	163.	13.75	75.	24.	23.	1.40		
ROUTED TO	RPF10	163.	13.83	75.	24.	23.	1.40		
HYDROGRAPH AT	OPT	159.	13.75	74.	24.	23.	1.40		
ROUTED TO	ROPT	159.	13.83	74.	24.	23.	1.40		

OPT31B



Runoff Hydrographs for Drainage Subarea PF

OPT31B


ANAL
LATERAL 9.5
ELLIOT RD.
RD.
WARNER RD.
CHANDLER
CHANDLER
SCHOOL
ARIZONA AVE
S.P.R.R.
RAY RD.
PRICE RD.
DOBSON RD.
ALMA
CHANDLER BLVD.
PP
PECOS RD.

OPT31C

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 31-33(s) <PP.DAT>
  2           ID        Flows to Pecos and Price
  3           ID        Initial abstration used to represent development retention provided
  4           ID        100-Year 24-Hour Storm - June 6,1989  HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK     PP1
  8           KM        Runoff from Kesler Addition
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.091
 11           LS            85.8
 12           UD    0.52

 13           KK    RPP1
 14           KM        Route PP1 outflow to PP2 along Pecos Road
 15           RK    2100  0.0033   0.030            TRAP    10.0     2.5

 16           KK     PP2
 17           KM        Runoff from Chiefton Village and Cardon Homes
 18           BA   0.098
 19           LS            86.5
 20           UD    0.56

 21           KK    CPP2
 22           KM        Combine flows in SRP ditch along Pecos Road
 23           HC       2

 24           KK    RPP2
 25           KM        Route flows to West along Pecos Road
 26           RK    2650  0.0008   0.030            TRAP    10.0     2.5

 27           KK    RPP3
 28           KM        Route RPP2 flows along Pecos Road
 29           RK    2650  0.0017   0.030            TRAP    10.0     2.5

 30           KK     PP3
 31           KM        Runoff from Pylman Ranch (40% of D.A. contributing)
 32           BA   0.125
 33           LS             79
 34           UD    0.58

 35           KK    CPP3
 36           KM        Combine flows in along Pecos Road
 37           HC       2

 38           KK   RCPP3
 39           KM        Route CPP4 flows along Pecos Road
 40           RK    2600  0.0025   0.030            TRAP    10.0     2.5
```

OPT31C

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

  41          KK     PP4
  42          KM        Runoff from Tierralago
  43          BA   0.188
  44          LS    1.00     81.7
  45          UD    1.11

  46          KK    CPP4
  47          KM        Combine hydrographs at Pecos Road
  48          HC       2

  49          KK   RCPP4
  50          KM        Route flows along Pecos Road
  51          RK    1800  0.0028   0.030            TRAP    10.0     2.5

  52          KK     PP5
  53          KM        Runoff from Pecos Medical Village
  54          BA   0.084
  55          LS    0.75     85.5
  56          UD    0.47

  57          KK    CPP5
  58          KM        Combine flows at Pecos Road
  59          HC       2

  60          KK   RCPP5
  61          KM        Route CPP6 flows along Pecos Road to Price Pecos Basin
  62          RK    3000  0.0023   0.030            TRAP    10.0     2.5

  63          KK     PP6
  64          KM        Runoff from Price Road Industrial Park
  65          BA   0.109
  66          LS    1.50     81.0
  67          UD    0.77

  68          KK    CPP6
  69          KM        Combine flows in Retention basin at Price and Pecos
  70          KO       1        2
  71          HC       2

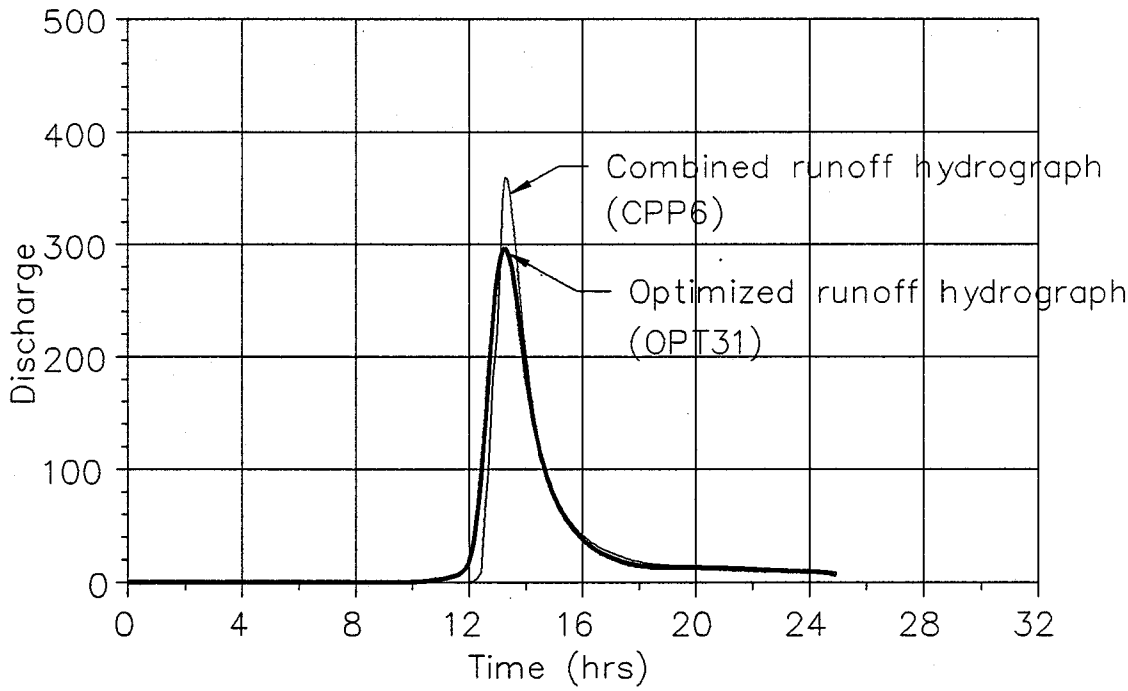
  72          KK   OPT31
  73          KM        Optimized single basin for sections 31-33
  74          KO       1        2
  75          BA    0.69
  76          LS    0.32     75.0
  77          UD    1.10
  78          ZZ
```

OPT31C

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

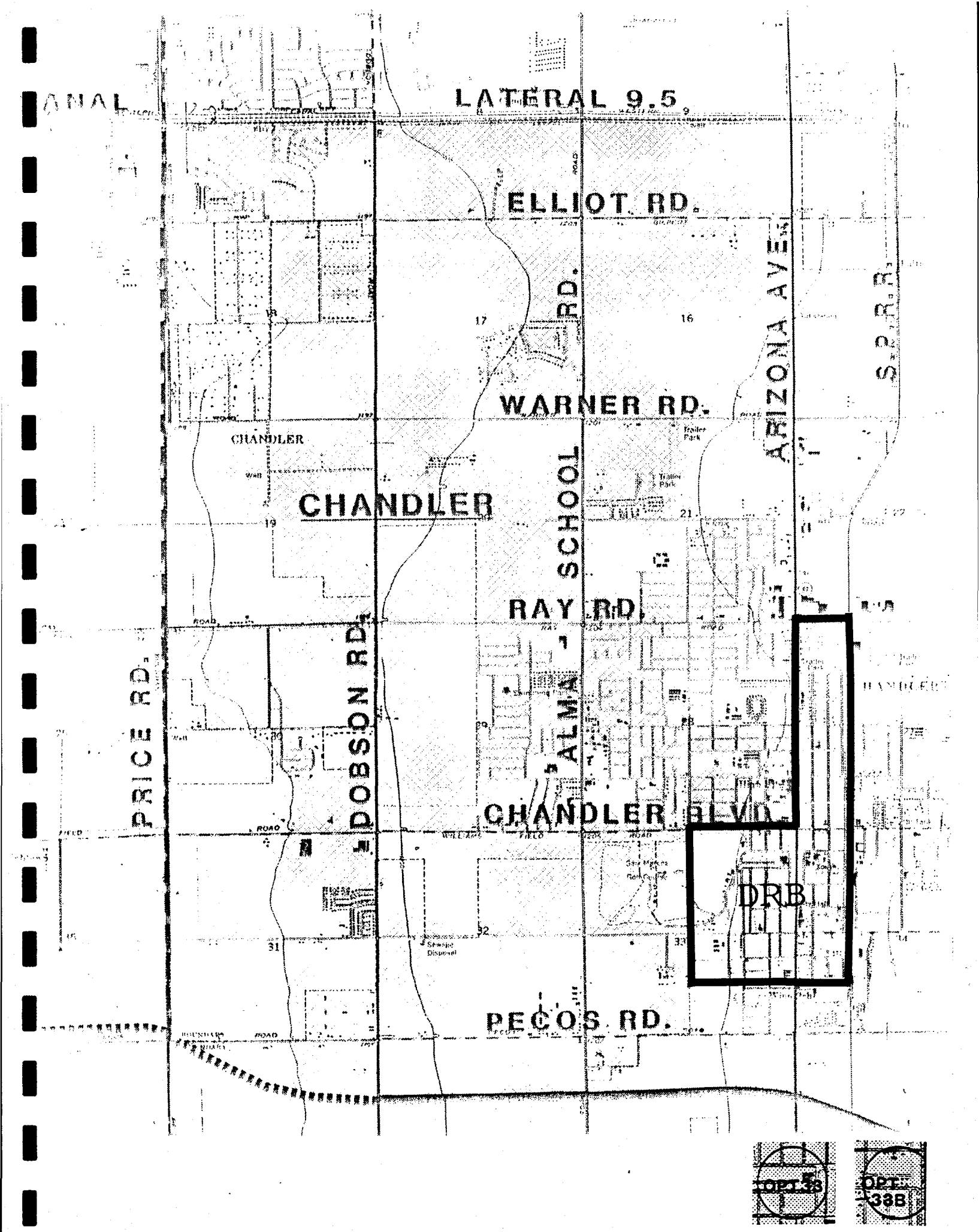
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	PP1	89.	12.58	18.	5.	5.	.09		
ROUTED TO	RPP1	88.	12.75	18.	5.	5.	.09		
HYDROGRAPH AT	PP2	94.	12.67	20.	6.	6.	.10		
2 COMBINED AT	CPP2	181.	12.67	39.	11.	11.	.19		
ROUTED TO	RPP2	181.	12.92	39.	11.	10.	.19		
ROUTED TO	RPP3	180.	13.08	39.	11.	10.	.19		
HYDROGRAPH AT	PP3	85.	12.67	19.	5.	5.	.13		
2 COMBINED AT	CPP3	246.	13.00	57.	16.	16.	.31		
ROUTED TO	RCPP3	244.	13.08	57.	16.	15.	.31		
HYDROGRAPH AT	PP4	66.	13.33	23.	7.	7.	.19		
2 COMBINED AT	CPP4	305.	13.17	80.	23.	22.	.50		
ROUTED TO	RCPP4	304.	13.17	80.	23.	22.	.50		
HYDROGRAPH AT	PP5	72.	12.58	14.	4.	4.	.08		
2 COMBINED AT	CPP5	335.	13.17	93.	27.	26.	.59		
ROUTED TO	RCPP5	332.	13.33	93.	26.	25.	.59		
HYDROGRAPH AT	PP6	30.	13.08	9.	3.	3.	.11		
2 COMBINED AT	CPP6	360.	13.25	102.	29.	28.	.69		
HYDROGRAPH AT	OPT31	297.	13.25	102.	29.	28.	.69		

OPT31C



Runoff Hydrographs for Drainage Subarea PP

OPT31C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ELLIOT RD.
WARNER RD.
CHANDLER
CHANDLER
RAY RD.
CHANDLER BLVD.
PECOS RD.
PRICE RD.
DOBSON RD.
ALMA SCHOOL RD.
ARIZONA AVE
DRB
OPT. 33
OPT. 33B

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

  1           ID        Price  Road  Offsite Hydrology - Model For Section 27&33   <DRB1.DAT>
  2           ID        Flows to Denver Regional Basin
  3           ID        NO Initial abstration used. Denver Basin modeled
  4           ID        100-Year 24-Hour Storm - June 6,1989   HDR - PHX
              *DIAGRAM
  5           IT       5                    300
  6           IO       3       0       0

  7           KK    DRB1
  8           KM        Runoff from Chandler Town Centre & Lundquist Manor (No.)
  9           PH       1      40    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 10           BA   0.094
 11           LS            87.5
 12           UD    0.50

 13           KK   RDRB1
 14           KM        Route DRB1 outflow to DRB2
 15           RK    1300  0.0008   0.016            TRAP     0.0    25.0

 16           KK    DRB2
 17           KM        Runoff from Lundquist Manor (So.) & Kirby McCullough Tract
 18           BA   0.063
 19           LS            86.5
 20           UD    0.46

 21           KK   CDRB2
 22           KM        Combine flows from DRB2 and RDRB1
 23           HC       2

 24           KK   RDRB2
 25           KM        Route CDRB2 flows to DRB3
 26           RK    2000  0.0004   0.016            TRAP     0.0    25.0

 27           KK    DRB3
 28           KM        Runoff from Downtown Chandler ( Older section w/o retention)
 29           BA   0.094
 30           LS            88.1
 31           UD    0.57

 32           KK   CDRB3
 33           KM        Combine flows from DRB3 and RDRB2
 34           HC       2

 35           KK   RDRB3
 36           KM        Route flows 1/4 mi south to DRB4
 37           RK    1450  0.0011   0.016            TRAP     0.0    25.0

 38           KK    DRB4
 39           KM        Runoff from Downtown Chandler ( Older section w/o retention)
 40           BA   0.070
 41           LS            89.5
 42           UD    0.48
```

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

  43          KK   CDRB4
  44          KM        Combine flows at Arizona Ave. CDRB3 and DRB4
  45          HC       2

  46          KK  RCDRB4
  47          KM        Route combined flows CDRB4 to DRB5 subarea
  48          RK    2450  0.0018   0.016            TRAP     0.0    25.0

  49          KK    DRB5
  50          KM       Runoff from Chandler so. downtown (Older section w/o retention)
  51          BA   0.075
  52          LS            89.3
  53          UD    0.44

  54          KK   CDRB5
  55          KM        Combine flows  RCDRB4 and DRB5
  56          HC       2

  57          KK   RDRB5
  58          KM        Route CDRB5 flows to Hartford and Frye intersection
  59          RK    1500  0.0008   0.016            TRAP     0.0    25.0

  60          KK    DRB6
  61          KM        Runoff from San Marcos Hotel and surrounding commercial
  62          BA   0.055
  63          LS            91.0
  64          UD    0.34

  65          KK   RDRB6
  66          KM        Route DRB6 flows to DRB7 Hartford and Frye Inter.
  67          RK    2400  0.0007   0.016            TRAP     0.0    25.0

  68          KK  CDGB6
  69          KM        Combine flows at intersection of Hartford and Frye
  70          HC       2

  71          KK    DRB7
  72          KM        Runoff from East San Marcos Country Club
  73          BA   0.125
  74          LS            67.9
  75          UD    0.60

  76          KK   CDRB7
  77          KM        Combine flows at Hartford and Frye
  78          HC       2

  79          KK  RCDRB7
  80          KM        Route CDRB7 flows to Denver Regional Basin
  81          KO       1       2
  82          RK     900  0.0007   0.016            TRAP     0.0    50.0
```

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

  83          KK   DENRB
  84          KM        Divert flows into Denver Retention Basin
  85          KO       1       2
  86          RS       1    STOR     0.0
  87          SV       0    62.3    62.6    62.9    63.5    65.0    67.7
  88          SQ       0     0.0      44      87     202     392     784

  89          KK     DRB8
  90          KM        Runoff from City Yard and Dobson Addition
  91          BA   0.116
  92          LS            90.4
  93          UD    0.57

  94          KK   RDRB8
  95          KM        Route DRB8 flows to Denver Retention Basin
  96          RK    1200  0.0008   0.016            TRAP     0.0    25.0

  97          KK  CDGB8
  98          KM        Combine flows at Denver Retention Basin
  99          HC       2

 100          KK    DRB9
 101          KM        Runoff from Whitten Addition and Denver School
 102          BA   0.125
 103          LS            87.5
 104          UD    0.47

 105          KK   CDRB9
 106          KO       1       2
 107          KM        Combine flows AT Denver Retention Basin (INCLUDES BASIN OUTFLOW)
 108          HC       2

 109          KK  R2DRB7
 110          KM        Route Denver Regional Basin outflows to Pecos and Hartford St.
 111          KO       1       2
 112          RK    1300  0.0004   0.016            TRAP     0.0    25.0

 113          KK   OPT28
 114          KM        Optimized basin inflow into Denver Regional Basin
 115          BA    0.58
 116          LS    1.10     95.0
 117          UD    0.86

 118          KK   DENRB
 119          KM        Divert flows into Denver Retention Basin
 120          KO       1       2
 121          RS       1    STOR     0.0
 122          SV       0    62.3    62.6    62.9    63.5    65.0    67.7
 123          SQ       0     0.0      44      87     202     392     784
```

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

 124          KK  OPT28B
 125          KM        Optimized flows from d/s of Denver Regional Basin
 126          BA    0.24
 127          LS    0.40    90.8
 128          UD    0.57

 129          KK   CDRB9
 130          KO       1       2
 131          KM        Combine flows AT Denver Retention Basin (INCLUDES BASIN OUTFLOW)
 132          HC       2

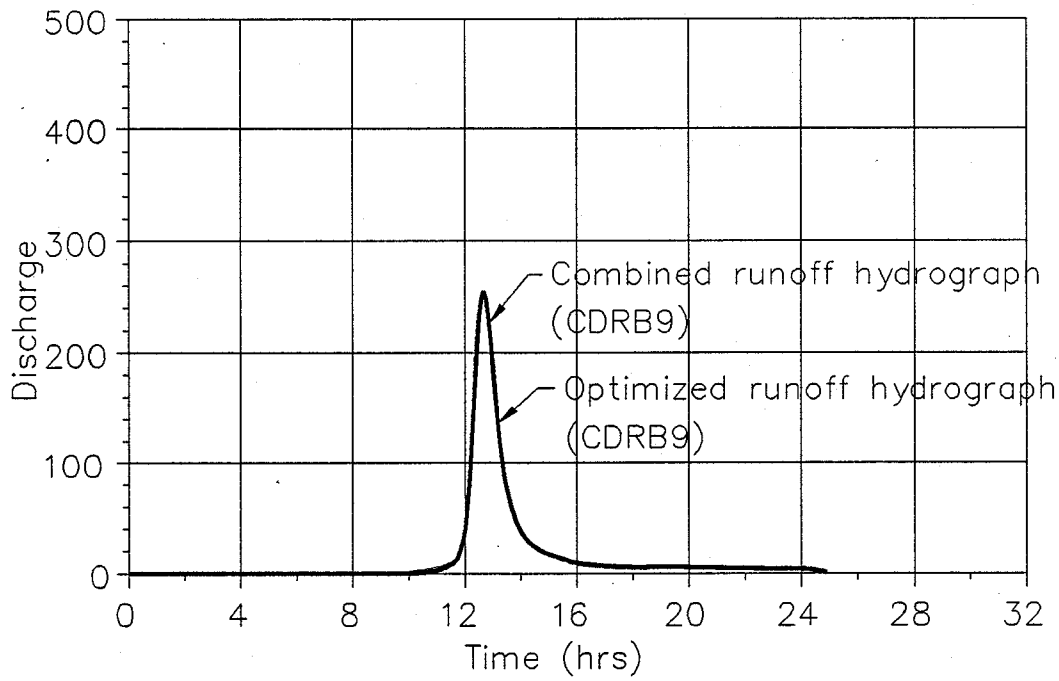
 133          KK  R2DRB7
 134          KM        Route Denver Regional Basin outflows to Pecos and Hartford St.
 135          KO       1       2
 136          RK    1300  0.0004   0.016            TRAP     0.0     25.0
 137          ZZ
```

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	DRB1	100.	12.58	20.	6.	6.	.09		
ROUTED TO	RDRB1	99.	12.67	20.	6.	6.	.09		
HYDROGRAPH AT	DRB2	68.	12.58	13.	4.	4.	.06		
2 COMBINED AT	CDRB2	163.	12.67	33.	9.	9.	.16		
ROUTED TO	RDRB2	162.	12.83	33.	9.	9.	.16		
HYDROGRAPH AT	DRB3	95.	12.67	21.	6.	6.	.09		
2 COMBINED AT	CDRB3	249.	12.83	54.	15.	15.	.25		
ROUTED TO	RDRB3	249.	12.92	54.	15.	15.	.25		
HYDROGRAPH AT	DRB4	82.	12.58	16.	5.	4.	.07		
2 COMBINED AT	CDRB4	307.	12.83	70.	20.	19.	.32		
ROUTED TO	RCDRB4	305.	13.00	70.	20.	19.	.32		
HYDROGRAPH AT	DRB5	92.	12.50	17.	5.	5.	.08		
2 COMBINED AT	CDRB5	353.	12.92	87.	25.	24.	.40		
ROUTED TO	RDRB5	351.	13.00	87.	24.	24.	.40		
HYDROGRAPH AT	DRB6	82.	12.42	13.	4.	4.	.05		
ROUTED TO	RDRB6	81.	12.67	13.	4.	4.	.05		
2 COMBINED AT	CDGB6	402.	13.00	100.	28.	27.	.45		
HYDROGRAPH AT	DRB7	44.	12.83	11.	3.	3.	.13		
2 COMBINED AT	CDRB7	441.	13.00	111.	31.	30.	.58		
ROUTED TO	RCDRB7	438.	13.08	111.	31.	30.	.58		
ROUTED TO	DENRB	0.	.08	0.	0.	0.	.58		
HYDROGRAPH AT	DRB	127.	12.67	28.	8.	8.	.12		
ROUTED TO	RDRB8	127.	12.75	28.	8.	8.	.12		
2 COMBINED AT	CDGB8	127.	12.75	28.	8.	8.	.69		
HYDROGRAPH AT	DRB9	138.	12.58	27.	8.	7.	.13		
2 COMBINED AT	CDRB9	256.	12.67	55.	16.	15.	.82		
ROUTED TO	R2DRB7	254.	12.75	55.	15.	15.	.82		
HYDROGRAPH AT	OPT28	394.	13.00	111.	31.	30.	.58		
ROUTED TO	DENRB	0.	.08	0.	0.	0.	.58		
HYDROGRAPH AT	OPT28B	255.	12.67	55.	15.	15.	.24		
2 COMBINED AT	CDRB9	255.	12.67	55.	15.	15.	.82		
ROUTED TO	R2DRB7	253.	12.75	55.	15.	15.	.82		

OPT 38

OPT 38B



Runoff Hydrographs for Drainage Subarea DRB

OPT.33
OPT.33B

Appendix E-2 - Area West of Price Road

SECT9
SECT10(1)
SECT10(2)
SECT10(3)
SECT11
SECT12
SECT13
SECT14
SECT15(1)
SECT15(2)
SECT16(1)
SECT16(2)
SECT16(3)
SECT20
SUB21(1)
SECT21(2)
SUB22(1)
SECT22(2)
SECT23
SECT24
SECT25
SECT26
SECT27
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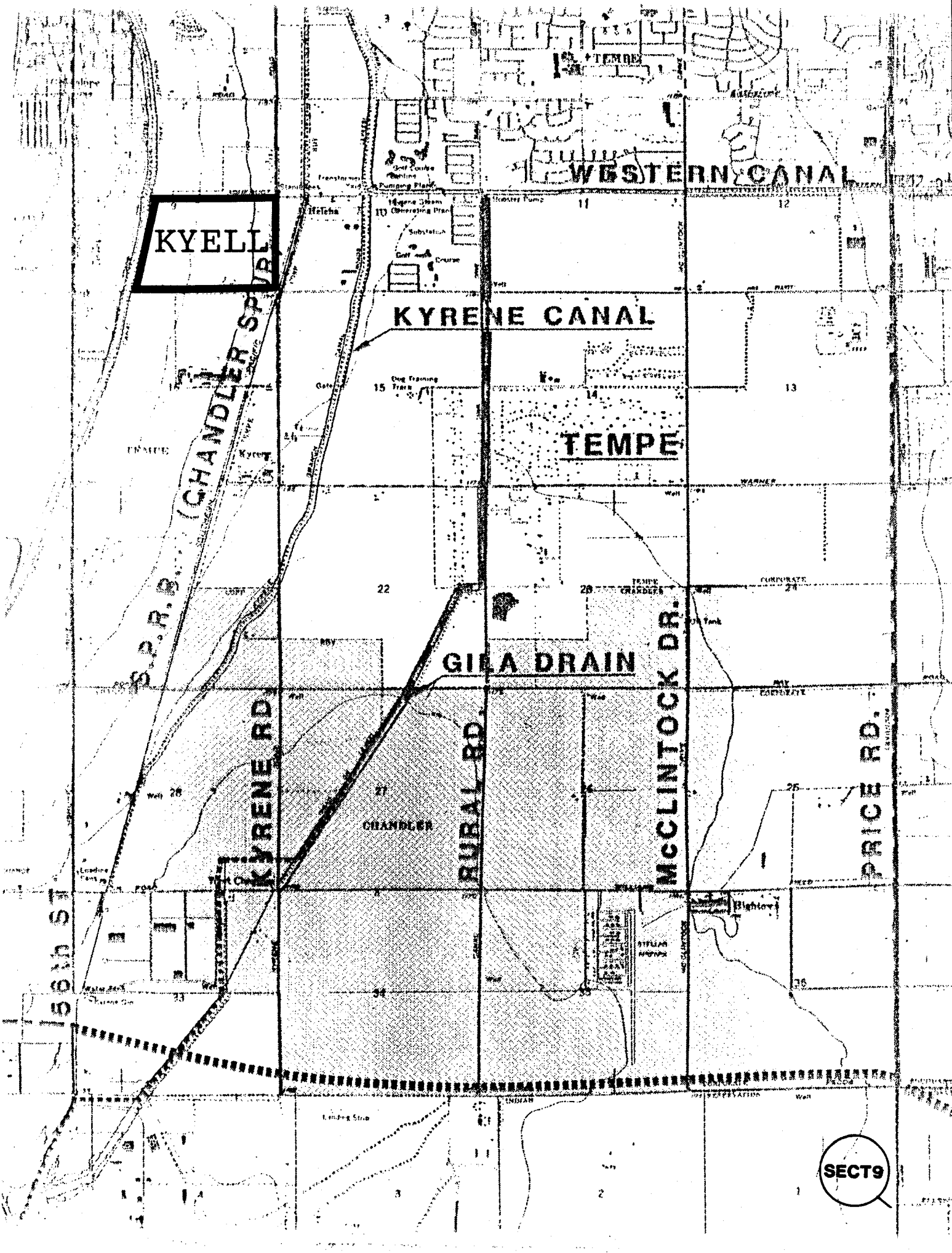
SUB28(2)
SECT29
SECT32
SECT33(1)
SECT33(2)
SECT34
SECT35
SECT36


KYELL
WESTERN CANAL
KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
156th ST
SECT9

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 9   <KYELL>
  2           ID        FLOWS TO KYRENE AND ELLIOT RD
  3           ID        AREA LOCATED IN SECTION 9 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0

 12           KK  KYELL1
 13           KM        TEMPE - RESIDENTIAL - 0.16
 14           KM        COMPUTE RUNOFF FOR RESIDENTIAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1463
 17           LS     2.6      84
 18           UD    0.42

 19           KK     RT1
 20           KM        ROUTE KYELL1 RUNOFF HYDROGRAPH TO KYELL2
 21           RK    1400  0.0067   0.016            TRAP     0.0    25.0

 22           KK  KYELL2
 23           KM        TEMPE - AGRICULTURAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 25           BA  0.0517
 26           LS     1.5      83
 27           UD    0.27

 28           KK     RT2
 29           KM        ROUTE KYELL2 RUNOFF HYDROGRAPH TO KYELL3
 30           RK    2600  0.0067   0.016            TRAP     0.0    25.0

 31           KK  KYELL3
 32           KM        TEMPE - AGRICULTURAL
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 34           BA  0.1356
 35           LS     1.5      83
 36           UD    0.52

 37           KK  OUTLET
 38           KM        COMBINE RT1 - RT2 - KYELL3
 39           KO       0       1                    21
 40           HC       3

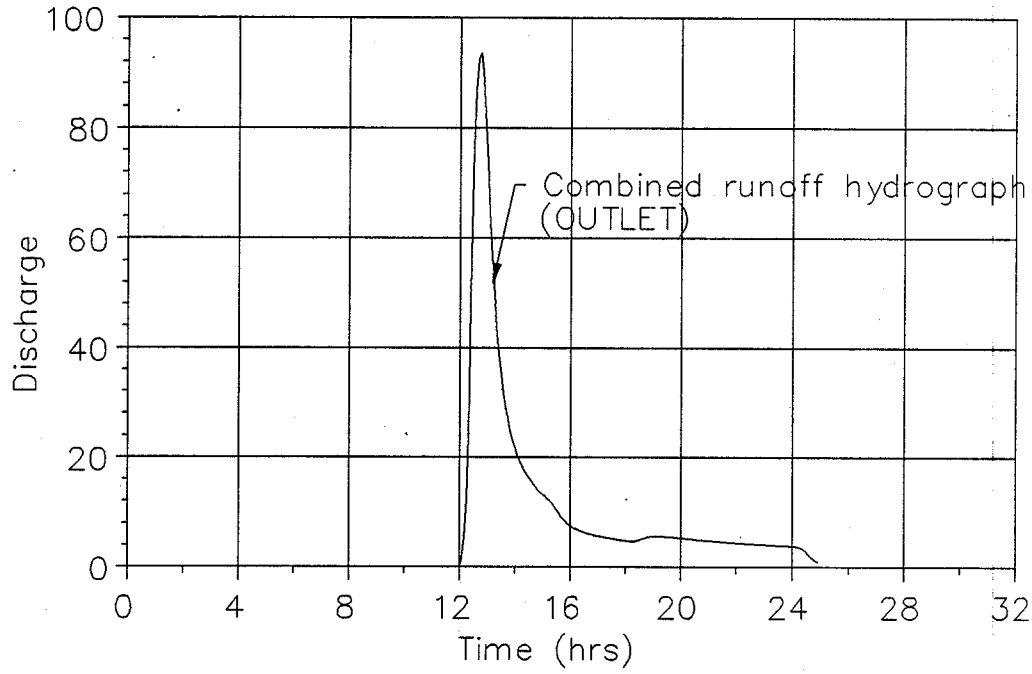
 41           KK  OPTIMZ
 42           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
 43           KO       0       1                    21
 44           BA    0.33
 45           LS    1.94    83.0
 46           UD    0.44
 47           ZZ
```

SECT9

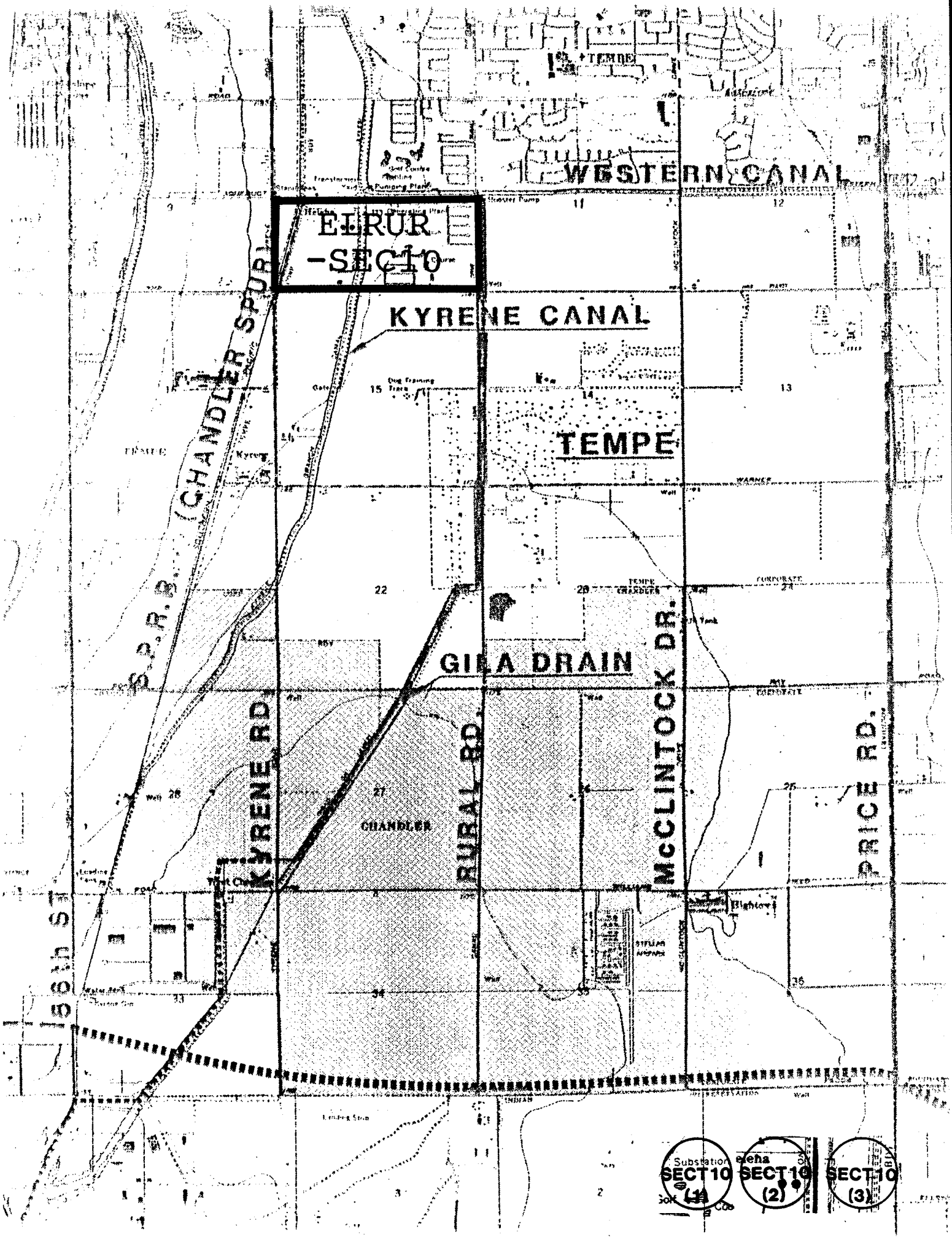
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	KYELL1	9.	13.00	4.	1.	1.	.15		
ROUTED TO	RT1	9.	13.08	4.	1.	1.	.15		
HYDROGRAPH AT	KYELL2	33.	12.42	5.	1.	1.	.05		
ROUTED TO	RT2	32.	12.58	5.	1.	1.	.05		
HYDROGRAPH AT	KYELL3	61.	12.75	13.	4.	4.	.14		
3 COMBINED AT	OUTLET	93.	12.75	22.	7.	7.	.33		
HYDROGRAPH AT	OPTIMZ	94.	12.75	22.	7.	6.	.33		

SECT9



Runoff Hydrograph for Drainage Subarea KYELL


ELRUR
-SEC10-
WESTERN CANAL
KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
156th ST
CHANDLER
SECT10 (1)
SECT10 (2)
SECT10 (3)

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 10  <ELRUR>
  2           ID        FLOWS TO ELLIOT AND RURAL RD
  3           ID        AREA LOCATED IN SECTION 10 - WEST OF RURAL ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  ELRUR4
 13           KM        TEMPE - RESIDENTIAL - 0.16
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.0730
 17           LS     2.1      84
 18           UD    0.30

 19           KK  ELRUR3
 20           KM        TEMPE - RESIDENTIAL - 0.16
 21           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 22           BA  0.0680
 23           LS     2.1      84
 24           UD    0.48

 25           KK   COMB1
 26           KM        COMBINE ELRUR4 AND ELRUR3 RUNOFF HYDROGRAPHS
 27           HC       2

 28           KK     RT1
 29           KM        ROUTE COMB1 HYDROGRAPH TO ELLIOT/RURAL RD INTERSECTION
 30           RK    1500  0.0032   0.016            TRAP     0.0    25.0

 31           KK  ELRUR1
 32           KM        TEMPE - RESIDENTIAL - 0.16
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 34           BA  0.0730
 35           LS     2.1      84
 36           UD    0.42

 37           KK     RT2
 38           KM        ROUTE ELRUR1 RUNOFF HYDROGRAPH TO ELLIOT/RURAL RD INTERSECTION
 39           RK    1300  0.0032   0.016            TRAP     0.0    25.0

 40           KK  ELRUR2
 41           KM        TEMPE - RESIDENTIAL - 0.16
 42           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 43           BA  0.0680
 44           LS     2.1      84
 45           UD    0.40
```

Substation SECT10 (1) Jeha SECT10 (2) SECT10 (3)

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

  46          KK  OUTLT1
  47          KM        COMBINE ELRUR2 - RT2 - RT1 HYDROGRAPHS TO GIVE TOTAL HYDROGRAPH
  48          KM        AT ELLIOT/RURAL RD INTERSECTION
  49          HC       3
  50          KO       0       1                       21

  51          KK  OPTIM1
  52          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT1
  53          KO       0       1                       21
  54          BA    0.50
  55          LS    2.41    84.0
  56          UD    0.36

  57          KK  OUTLT2
  58          KM        TEMPE - INDUSTRIAL
  59          KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL SITE TO GIVE TOTAL
  60          KM        HYDROGRAPH AT ELLIOT/SO.PAC. RR INTERSECTION
  61          BA  0.1850
  62          LS    2.25      88
  63          UD    0.53
  64          KO       0       1                       21

  65          KK  OPTIM2
  66          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT2
  67          KO       0       1                       21
  68          BA    0.19
  69          LS    2.25    88.0
  70          UD    0.53

  71          KK  OUTLT3
  72          KM        TEMPE - AGRICULTURAL
  73          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL SITE TO GIVE TOTAL
  74          KM        HYDROGRAPH AT ELLIOT/KYRENE CANAL INTERSECTION
  75          BA  0.0330
  76          LS     1.5      83
  77          UD    0.92
  78          KO       0       1                       21

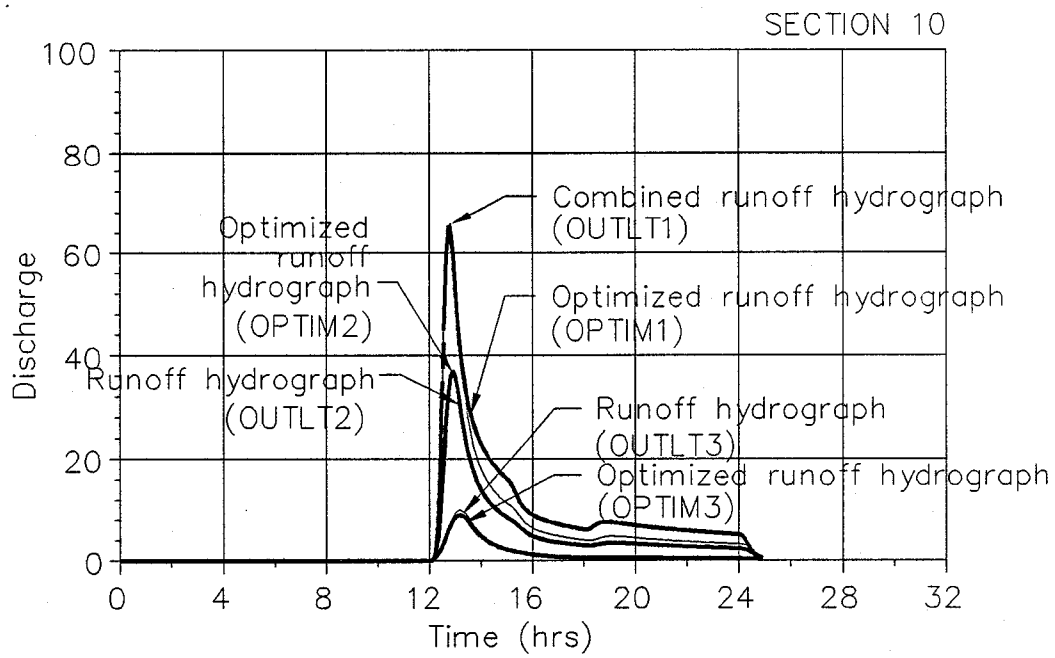
  79          KK  OPTIM3
  80          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT3
  81          KO       0       1                       21
  82          BA    0.03
  83          LS    1.50    83.0
  84          UD    0.92
  85          ZZ
```

Substation SECT10 (1) Kehe SECT10 (2) SECT10 (3)

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

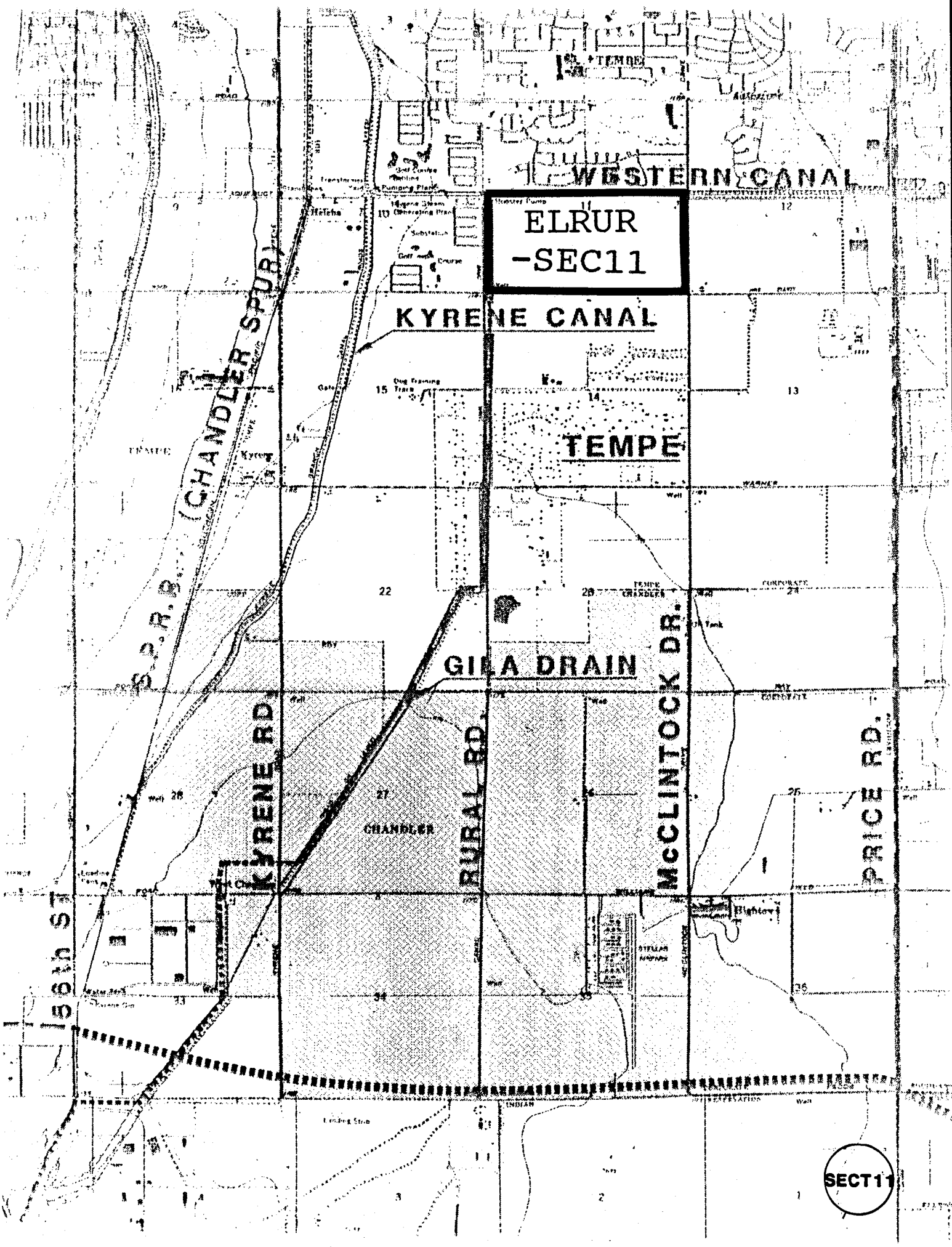
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	ELRUR4	20.	12.58	4.	1.	1.	.07		
HYDROGRAPH AT	ELRUR3	15.	12.83	4.	1.	1.	.07		
2 COMBINED AT	COMB1	33.	12.67	8.	3.	2.	.14		
ROUTED TO	RT1	33.	12.83	8.	3.	2.	.14		
HYDROGRAPH AT	ELRUR1	17.	12.75	4.	1.	1.	.07		
ROUTED TO	RT2	17.	12.83	4.	1.	1.	.07		
HYDROGRAPH AT	ELRUR2	17.	12.75	4.	1.	1.	.07		
3 COMBINED AT	OUTLT1	66.	12.83	16.	5.	5.	.28		
HYDROGRAPH AT	OPTIM1	65.	12.75	19.	6.	6.	.50		
HYDROGRAPH AT	OUTLT2	36.	12.92	11.	3.	3.	.19		
HYDROGRAPH AT	OPTIM2	37.	12.92	11.	3.	3.	.19		
HYDROGRAPH AT	OUTLT3	10.	13.17	3.	1.	1.	.03		
HYDROGRAPH AT	OPTIM3	9.	13.17	3.	1.	1.	.03		

Substation SECT10 (1) Teha SECT10 (2) SECT10 (3)



Runoff Hydrographs for Drainage Subarea ELRUR

Substation SECT10 (1) SECT10 (2) SECT10 (3)


ELRUR
-SEC11
WESTERN CANAL
KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
56th St
CHANDLER
SECT11

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

              *DIAGRAM
   1          ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 11  <ELRUR>
   2          ID        FLOWS TO ELLIOT AND RURAL RD
   3          ID        AREA LOCATED IN SECTION 11 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
   4          ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
   5          ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
   6          ID        HDR - PHOENIX
   7          ID
   8          ID
   9          IT      5                    300
  10          IN     30
  11          IO      5       0       0

  12          KK  ELRUR1
  13          KM        TEMPE - RESIDENTIAL - 0.16
  14          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  15          PH      1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
  16          BA  0.0950
  17          LS    2.6      84
  18          UD   0.40

  19          KK    RT1
  20          KM        ROUTE ELRUR1 RUNOFF HYDROGRAPH TO RETENTION BASIN SITE
  21          RK   1700  0.0007   0.016            TRAP     0.0    25.0

  22          KK  ELRUR2
  23          KM        TEMPE - RESIDENTIAL - 0.16
  24          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  25          BA  0.0320
  26          LS    2.6      84
  27          UD   0.33

  28          KK    RT2
  29          KM        ROUTE ELRUR2 RUNOFF HYDROGRAPH TO RETENTION BASIN SITE
  30          RK    700  0.0007   0.016            TRAP     0.0    25.0

  31          KK  ELRUR4
  32          KM        TEMPE - RESIDENTIAL - 0.16
  33          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  34          BA  0.1070
  35          LS    2.6      84
  36          UD   0.38

  37          KK  ELRUR5
  38          KM        TEMPE - RESIDENTIAL - 0.16
  39          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  40          BA  0.1350
  41          LS    2.6      84
  42          UD   0.52
```

SECT11

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

  43          KK  ELRUR7
  44          KM        TEMPE - RESIDENTIAL - 0.16
  45          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  46          BA  0.0430
  47          LS     2.6      84
  48          UD    0.35

  49          KK   COMB1
  50          KM       COMBINE RT1-RT2-ELRUR4-ELRUR5-ELRUR7 HYDROGRAPHS AT RETENTION SITE
  51          HC       5

  52          KK     RT3
  53          KM       ROUTE COMB1 TO ELLIOT RD
  54          RK    1000  0.0007   0.016            TRAP     0.0    25.0

  55          KK  ELRUR3
  56          KM        TEMPE - COMMERCIAL
  57          KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
  58          BA  0.0420
  59          LS     2.8      92
  60          UD    0.40

  61          KK     RT4
  62          KM        ROUTE ELRUR3 HYDROGRAPH TO RT3 OUTLET
  63          RK    2700  0.0011   0.016            TRAP     0.0    25.0

  64          KK   COMB2
  65          KM        COMBINE RT4-RT3 HYDROGRAPHS
  66          HC       2

  67          KK     RT5
  68          KM        ROUTE COMB2 TO ELLIOT AND RURAL RD INTERSECTION
  69          RK    1300  0.0011   0.016            TRAP     0.0    25.0

  70          KK  ELRUR6
  71          KM        TEMPE - AGRICULTURAL
  72          KM        COMPUTE RUNOFF HYDROGRAPH FOR OPEN FIELD - NO FURROWS - NO BERMS
  73          BA  0.0550
  74          LS       0      83
  75          UD    0.98

  76          KK  OUTLET
  77          KM        COMBINE RT5 - ELRUR6 TO GIVE OUTLET HYDROGRAPH AT ELLIOT AND RURAL RD
  78          HC       2
  79          KO       0       1                    21

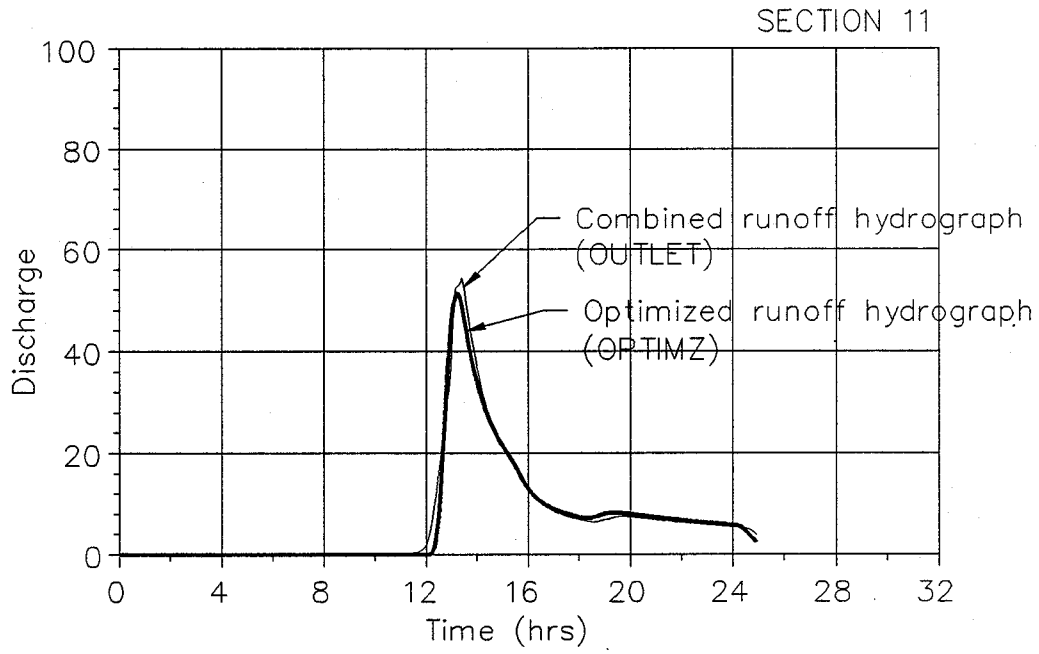
  80          KK  OPTIMZ
  81          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
  82          KO       0       1                    21
  83          BA    0.51
  84          LS    2.41    86.0
  85          UD    0.71
  86          ZZ
```

SECT11

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

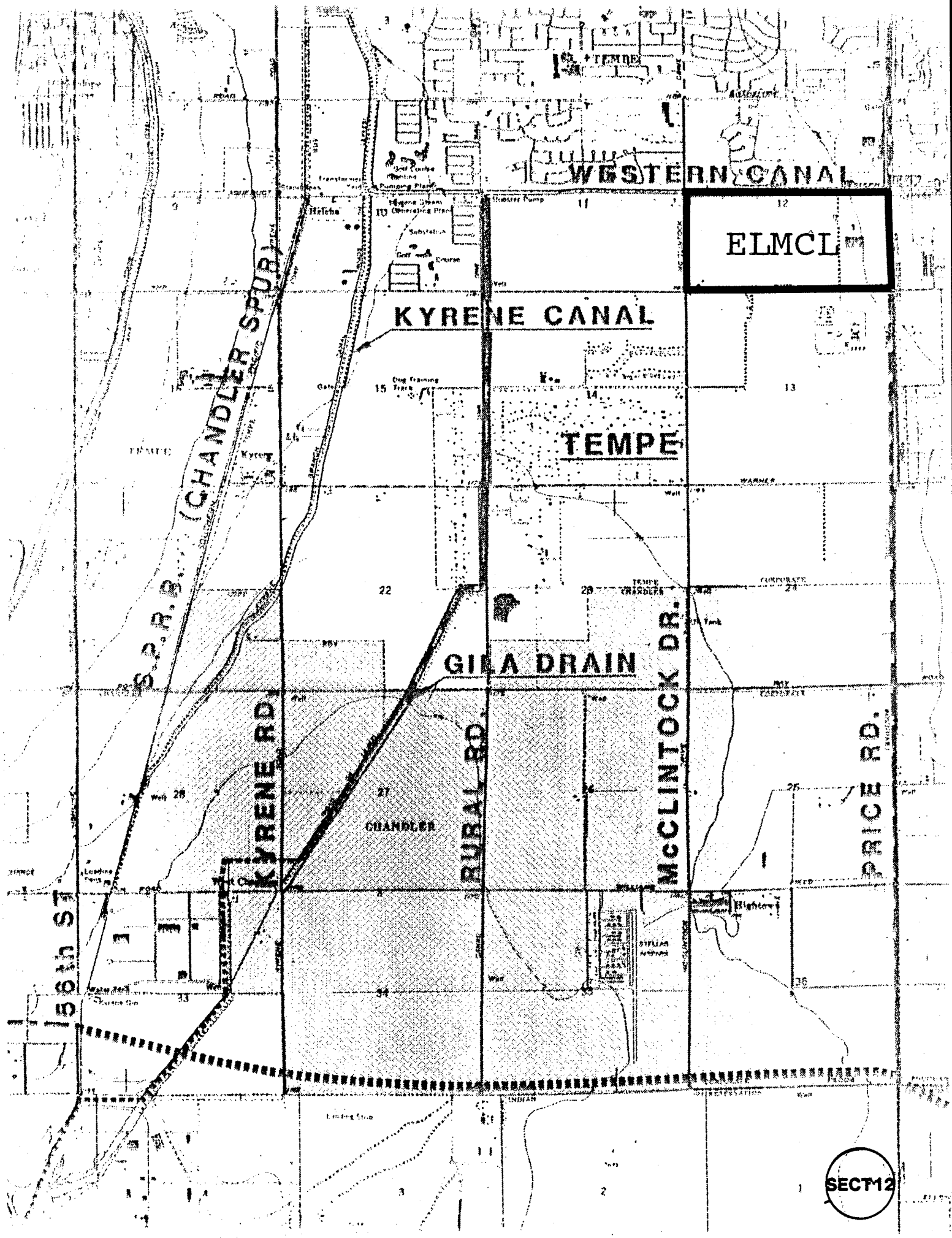
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	ELRUR1	6.	12.92	3.	1.	1.	.09		
ROUTED TO	RT1	6.	13.25	3.	1.	1.	.09		
HYDROGRAPH AT	ELRUR2	2.	12.83	1.	0.	0.	.03		
ROUTED TO	RT2	2.	13.00	1.	0.	0.	.03		
HYDROGRAPH AT	ELRUR4	7.	12.92	3.	1.	1.	.11		
HYDROGRAPH AT	ELRUR5	8.	13.08	4.	1.	1.	.14		
HYDROGRAPH AT	ELRUR7	3.	12.83	1.	0.	0.	.04		
5 COMBINED AT	COMB1	24.	13.17	11.	4.	4.	.41		
ROUTED TO	RT3	24.	13.33	11.	4.	4.	.41		
HYDROGRAPH AT	ELRUR3	2.	13.42	1.	0.	0.	.04		
ROUTED TO	RT4	2.	14.00	1.	0.	0.	.04		
2 COMBINED AT	COMB2	24.	13.33	12.	4.	4.	.45		
ROUTED TO	RT5	24.	13.50	12.	4.	4.	.45		
HYDROGRAPH AT	ELRUR6	34.	13.08	10.	3.	3.	.05		
2 COMBINED AT	OUTLET	54.	13.42	21.	7.	7.	.51		
HYDROGRAPH AT	OPTIMZ	51.	13.25	21.	7.	7.	.51		

SECT11



Runoff Hydrographs for Drainage Subarea ELRUR (Sect. 11)

SECT11


WESTERN CANAL
ELMCL
KYRENE CANAL
TEMPE
S.P.R.R. (CHANDLER SPUR)
GILA DRAIN
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
156th ST
SECT12

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 12  <ELMCL>
  2           ID        FLOWS TO ELLIOT AND McCLINTOCK RD
  3           ID        AREA LOCATED IN SECTION 12 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  ELMCL1
 13           KM        TEMPE - INDUSTRIAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR MOTOROLA PLANT SITE - ELMCL1
 15           KM        LARGE VOLUME OF RETENTION STORAGE LOCATED AROUND PERIMETER OF SITE
 16           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 17           BA    0.25
 18           LS     3.0      88
 19           UD    0.47

 20           KK     RT1
 21           KM        ROUTE ELMCL1 RUNOFF HYDROGRAPH THROUGH ELLIOT RD TO ELMCL2
 22           RK    2680  0.0030   0.016            TRAP     0.0    25.0

 23           KK  ELMCL2
 24           KM        TEMPE - RESIDENTIAL - 0.16
 25           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 26           KM        DEVELOPMENT INCLUDES A LARGE RETENTION LAKE
 27           BA    0.25
 28           LS     3.0      84
 29           UD    0.25

 30           KK   COMB1
 31           KM        COMBINE ELMCL2 AND RT1 HYDROGRAPHS TO GIVE OUTFLOW HYDROGRAPH
 32           KM        AT INTERSECTION OF ELLIOT AND McCLINTOCK RDS.
 33           HC       2
 34           KO       0       1                    21

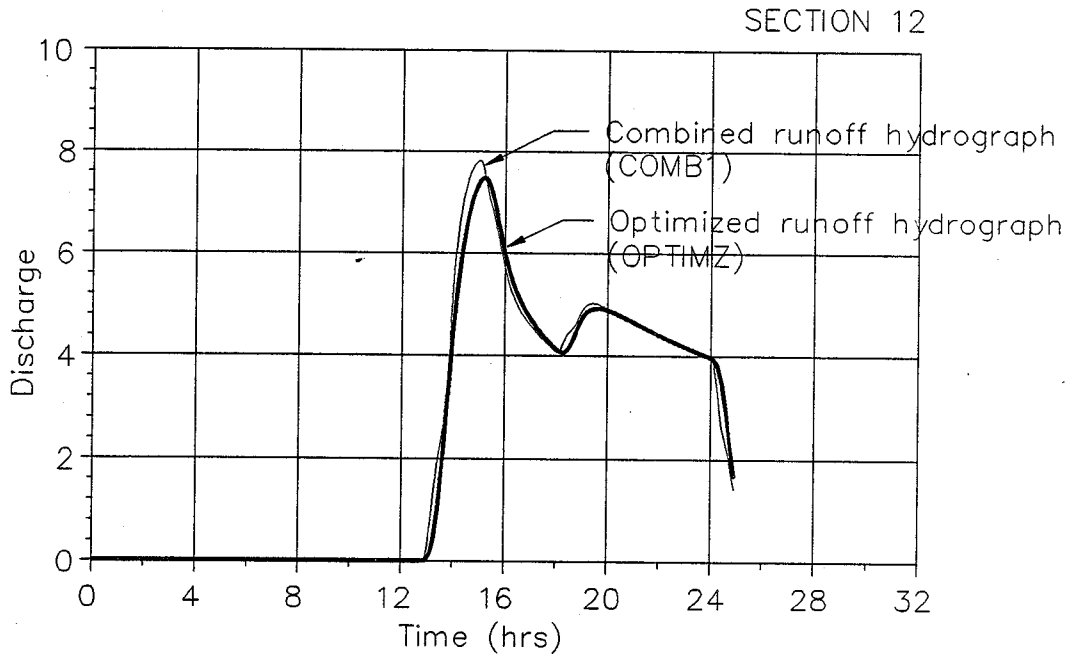
 35           KK  OPTIMZ
 36           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
 37           KO       0       1                    21
 38           BA    0.50
 39           LS    3.00 .  86.0
 40           UD    0.71
 41           ZZ
```

SECT12

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

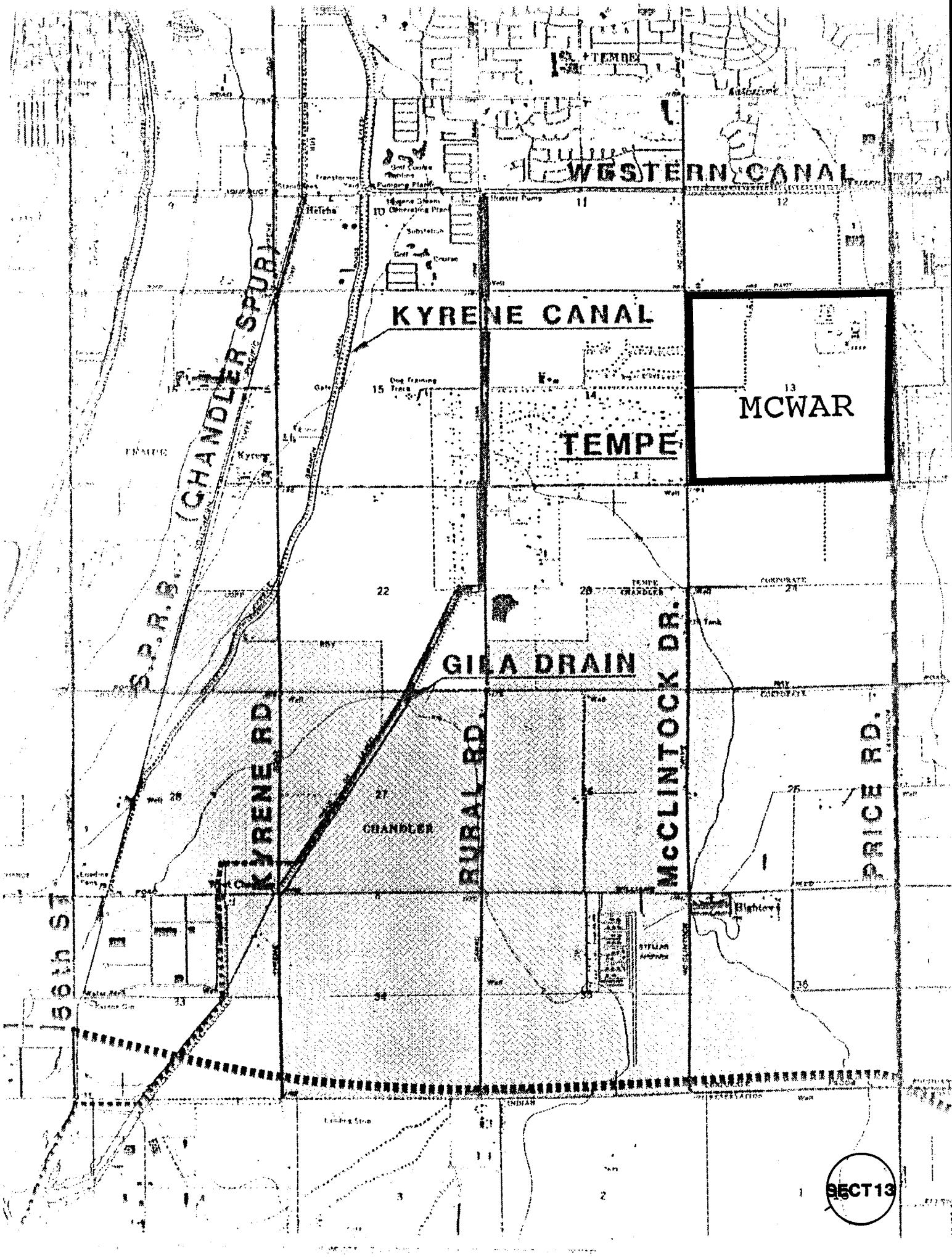
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	ELMCL1	4.	15.00	3.	1.	1.	.25		
ROUTED TO	RT1	4.	15.33	3.	1.	1.	.25		
HYDROGRAPH AT	ELMCL2	3.	14.67	2.	1.	1.	.25		
2 COMBINED AT	COMB1	8.	15.00	5.	2.	2.	.50		
HYDROGRAPH AT	OPTIMZ	7.	15.17	5.	2.	2.	.50		

SECT12



Runoff Hydrographs for Drainage Subarea ELMCL

SECT12


WESTERN CANAL
KYRENE CANAL
MCWAR
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
56th ST
CHANDLER
Kyrene
Helena
Golf Course
Substation
Pumping Plant
Booster Pump
Dog Training Track
Tempe Chandler
Corporate
Well
Tank
Loading Ramp
Water Well
Lookout Tower
Stellar Airpark
Indian
Lodging Store
Blightey
11
12
13
14
15
22
23
24
25
26
27
28
33
34
35
36
1
2
3
95CT13

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 13  <MCWAR>
  2           ID        FLOWS TO McCLINTOCK AND WARNER RD
  3           ID        AREA LOCATED IN SECTION 13 - WEST OF PRICE ROAD & SOUTH OF ELLIOT RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  MCWAR1
 13           KM        TEMPE - COMMERCIAL  (ASU RESEARCH PARK WITH RETENTION LAKE)
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.4530
 17           LS     3.0      93
 18           UD    1.05

 19           KK  MCWAR2
 20           KM        TEMPE - COMMERCIAL  (ASU RESEARCH PARK)
 21           KM        AREA OF ASU RESEARCH PARK THAT DRAINS TO WARNER RD
 22           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
 23           BA  0.0470
 24           LS       0      87
 25           UD    0.48

 26           KK   COMB1
 27           KM        COMBINE MCWAR1 AND MCWAR2 RUNOFF HYDROGRAPHS
 28           HC       2

 29           KK     RT1
 30           KM        ROUTE COMB1 HYDROGRAPH TO McCLINTOCK/WARNER RD INTERSECTION
 31           RK    2600  .00095   0.016            TRAP     0.0    25.0

 32           KK  MCWAR3
 33           KM        TEMPE - RESIDENTIAL - 0.16
 34           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 35           BA  0.0530
 36           LS     2.6      84
 37           UD    0.35

 38           KK     RT2
 39           KM        ROUTE MCWAR3 RUNOFF HYDROGRAPH TO MCWAR5 CONFLUENCE
 40           RK    1700  .00095   0.016            TRAP     0.0    25.0

 41           KK  MCWAR4
 42           KM        TEMPE - RESIDENTIAL - 0.16
 43           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 44           BA  0.0430
 45           LS     2.6      84
 46           UD    0.40
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SECT 13

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

  47          KK     RT3
  48          KM        ROUTE MCWAR4 RUNOFF HYDROGRAPH TO MCWAR5 CONFLUENCE
  49          RK    1700  .00095   0.016            TRAP     0.0    25.0

  50          KK  MCWAR5
  51          KM        TEMPE - RESIDENTIAL - 0.16
  52          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  53          BA  0.0340
  54          LS     2.6      84
  55          UD    0.30

  56          KK   COMB2
  57          KM        COMBINE RT2 - RT3 - MCWAR5 HYDROGRAPHS
  58          HC       3

  59          KK     RT4
  60          RK     700  .00019   0.016            TRAP     0.0    25.0

  61          KK  MCWAR6
  62          KM        TEMPE - RESIDENTIAL - 0.16
  63          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  64          BA  0.0610
  65          LS     2.6      84
  66          UD    0.57

  67          KK   COMB3
  68          KM        COMBINE RT4 - MCWAR6 HYDROGRAPHS
  69          HC       2

  70          KK     RT5
  71          RK     500  .00019   0.016            TRAP     0.0    25.0

  72          KK  MCWAR7
  73          KM        TEMPE - RESIDENTIAL - 0.16
  74          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  75          BA  0.0830
  76          LS     2.6      84
  77          UD    0.53

  78          KK   COMB4
  79          KM        COMBINE RT5 - MCWAR7 HYDROGRAPHS
  80          HC       2

  81          KK     RT6
  82          RK     800  .00019   0.016            TRAP     0.0    25.0

  83          KK  MCWAR8
  84          KM        TEMPE - RESIDENTIAL - 0.16
  85          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  86          BA  0.0810
  87          LS     2.6      84
  88          UD    0.58
```

SECT 13

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

 89           KK   COMB5
 90           KM        COMBINE RT6 - MCWAR8 HYDROGRAPHS
 91           HC       2

 92           KK     RT7
 93           RK    1100  .00019   0.016            TRAP     0.0    25.0

 94           KK  MCWAR9
 95           KM        TEMPE - RESIDENTIAL - 0.16
 96           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 97           BA  0.0580
 98           LS     2.6      84
 99           UD    0.48

100           KK     RT8
101           RK     800   .0012   0.016            TRAP     0.0    25.0

102           KK  MCWR10
103           KM        TEMPE - RESIDENTIAL - 0.16
104           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
105           BA  0.0600
106           LS     2.6      84
107           UD    0.38

108           KK   COMB6
109           KM        COMBINE RT8 - MCWR10 HYDROGRAPHS
110           HC       2

111           KK     RT9
112           RK     600  .00019   0.016            TRAP     0.0    25.0

113           KK  MCWR11
114           KM        TEMPE - COMMERCIAL
115           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
116           BA  0.0270
117           LS     2.8      92
118           UD    0.37

119           KK  OUTLET
120           KM        COMBINE RT1 - RT9 - MCWR11 HYDROGRAPHS
121           HC       4
122           KO       0       1                     21

123           KK  OPTIMZ
124           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
125           KO       0       1                     21
126           BA    1.00
127           LS    2.72    88.0
128           UD    0.32
129           ZZ
```

SECT 13

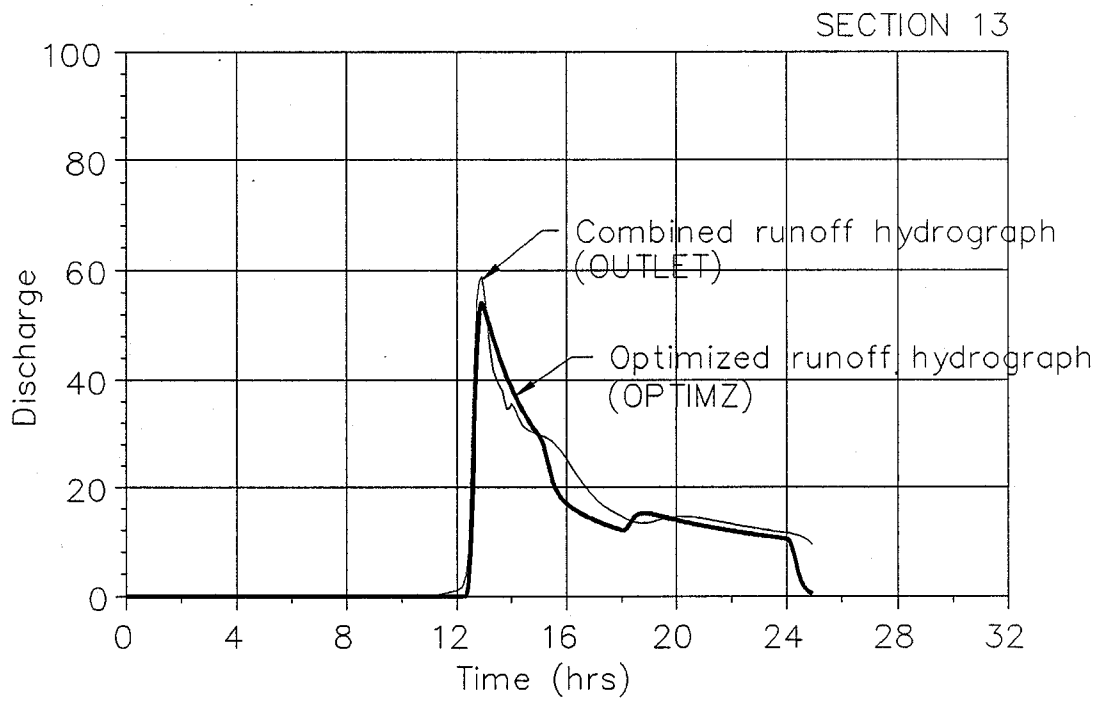
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	MCWAR1	11.	15.50	8.	3.	3.	.45		
HYDROGRAPH AT	MCWAR2	56.	12.58	10.	3.	3.	.05		
2 COMBINED AT	COMB1	56.	12.58	16.	6.	6.	.50		
ROUTED TO	RT1	56.	12.83	16.	6.	6.	.50		
HYDROGRAPH AT	MCWAR3	4.	12.83	1.	1.	0.	.05		
ROUTED TO	RT2	4.	13.17	1.	0.	0.	.05		
HYDROGRAPH AT	MCWAR4	3.	12.92	1.	0.	0.	.04		
ROUTED TO	RT3	3.	13.33	1.	0.	0.	.04		
HYDROGRAPH AT	MCWAR5	3.	12.75	1.	0.	0.	.03		
3 COMBINED AT	COMB2	8.	13.25	3.	1.	1.	.13		
ROUTED TO	RT4	8.	13.42	3.	1.	1.	.13		
HYDROGRAPH AT	MCWAR6	3.	13.17	2.	1.	1.	.06		
2 COMBINED AT	COMB3	11.	13.42	5.	2.	2.	.19		
ROUTED TO	RT5	11.	13.58	5.	2.	2.	.19		
HYDROGRAPH AT	MCWAR7	5.	13.17	2.	1.	1.	.08		
2 COMBINED AT	COMB4	15.	13.58	7.	3.	2.	.27		
ROUTED TO	RT6	15.	13.75	7.	3.	2.	.27		
HYDROGRAPH AT	MCWAR8	5.	13.25	2.	1.	1.	.08		
2 COMBINED AT	COMB5	19.	13.75	9.	3.	3.	.36		
ROUTED TO	RT7	19.	14.08	9.	3.	3.	.36		
HYDROGRAPH AT	MCWAR9	4.	13.08	2.	1.	1.	.06		
ROUTED TO	RT8	4.	13.17	2.	1.	1.	.06		
HYDROGRAPH AT	MCWR10	4.	12.92	2.	1.	1.	.06		
2 COMBINED AT	COMB6	7.	13.08	3.	1.	1.	.12		
ROUTED TO	RT9	7.	13.25	3.	1.	1.	.12		
HYDROGRAPH AT	MCWR11	1.	13.33	1.	0.	0.	.03		

SECT13

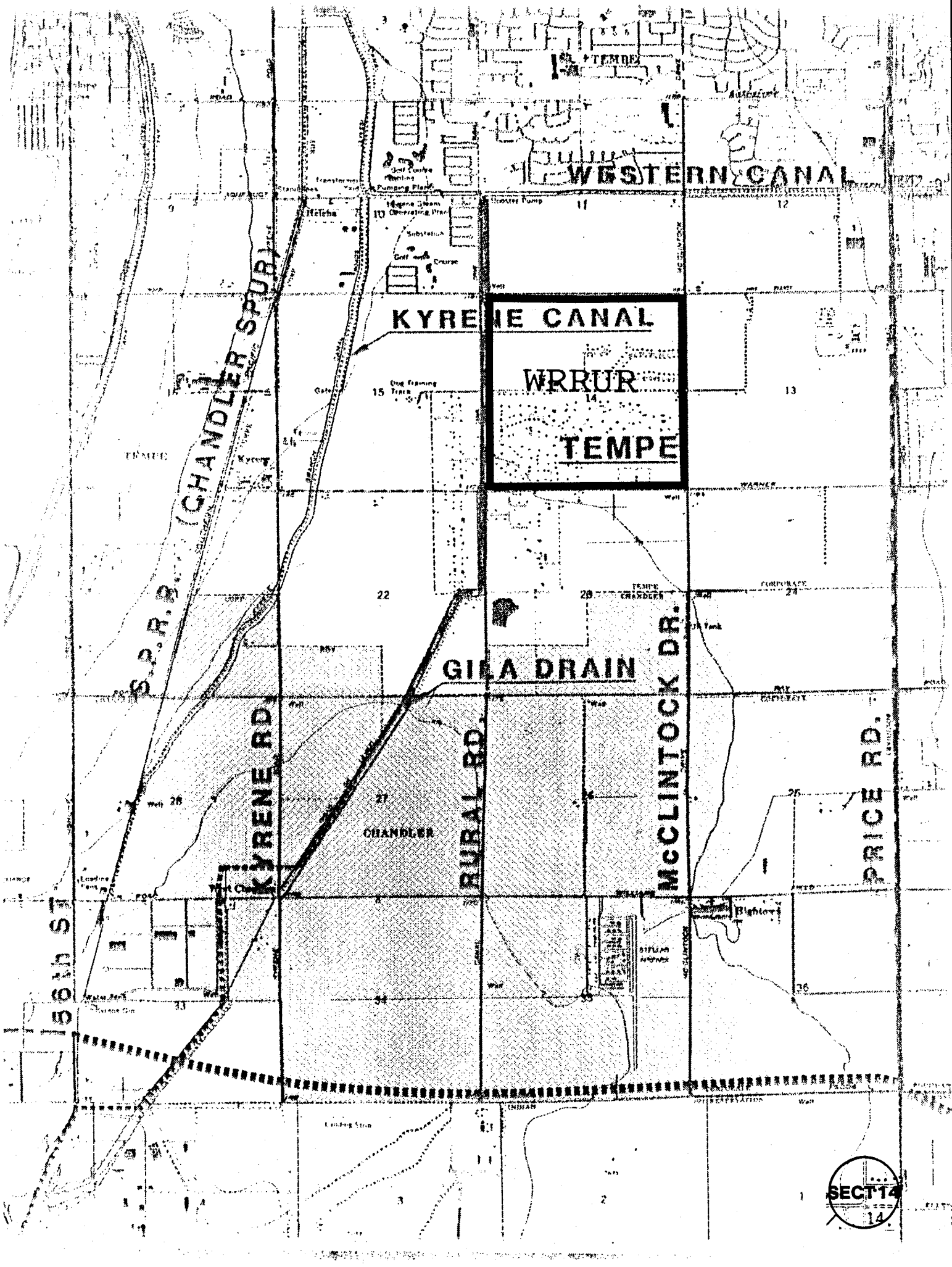
4 COMBINED AT	OUTLET	59.	12.92	28.	11.	10.	1.00
HYDROGRAPH AT	OPTIMZ	54.	12.92	26.	10.	9.	1.00

SECT13



Runoff Hydrographs for Drainage Subarea MCWAR

SECT13


WESTERN CANAL
KYRENE CANAL
WRRUR
TEMPE
S.P.R.R. (CHANDLER SPUR)
GILA DRAIN
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
56th ST
CHANDLER
SECT14

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 14  <WRRUR>
  2           ID        FLOWS TO WARNER AND RURAL RD
  3           ID        AREA LOCATED IN SECTION 14 - WEST OF PRICE ROAD & SOUTH OF ELLIOT RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  WRRUR1
 13           KM        TEMPE - RESIDENTIAL (ON-LOT RETENTION)
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.0625
 17           LS     3.0      70
 18           UD    0.37

 19           KK     RT1
 20           KM        ROUTE WRRUR1 HYDROGRAPH TO WRRUR2 CONFLUENCE
 21           RK    1300  .00091   0.016            TRAP     0.0    25.0

 22           KK  WRRUR2
 23           KM        TEMPE - RESIDENTIAL - (ON-LOT RETENTION)
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 25           BA  0.0625
 26           LS     3.0      70
 27           UD    0.37

 28           KK   COMB1
 29           HC       2

 30           KK     RT2
 31           KM        ROUTE COMB1 HYDROGRAPH TO WRRUR3 CONFLUENCE
 32           RK    1300  .00091   0.016            TRAP     0.0    25.0

 33           KK  WRRUR3
 34           KM        TEMPE - RESIDENTIAL - RANCHETTES (ON-LOT RETENTION)
 35           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 36           BA  0.1250
 37           LS     3.0      68
 38           UD    0.57

 39           KK   COMB2
 40           HC       2

 41           KK     RT3
 42           KM        ROUTE COMB2 HYDROGRAPH TO WRRUR5 CONFLUENCE
 43           RK    1700  .00091   0.016            TRAP     0.0    25.0
```

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

  44          KK  WRRUR4
  45          KM        TEMPE - RESIDENTIAL - 0.16
  46          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  47          BA  0.0970
  48          LS     2.6      84
  49          UD    0.52

  50          KK  WRRUR5
  51          KM        TEMPE - RESIDENTIAL - 0.50
  52          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  53          BA  0.0280
  54          LS     3.0      70
  55          UD    0.30

  56          KK   COMB3
  57          KM        COMBINE RT3 - WRRUR4 - WRRUR5 HYDROGRAPHS
  58          HC       3

  59          KK     RT4
  60          KM        ROUTE HYDROGRAPH TO WRRUR6 CONFLUENCE
  61          RK     940  .00091   0.016            TRAP     0.0    25.0

  62          KK  WRRUR6
  63          KM        TEMPE - RESIDENTIAL - 0.16
  64          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  65          BA  0.1250
  66          LS     2.6      84
  67          UD    0.65

  68          KK   COMB4
  69          KM        COMBINE RT4 - WRRUR6 HYDROGRAPHS
  70          HC       2

  71          KK     RT5
  72          KM        ROUTE HYDROGRAPHTO WRUR10 CONFLUENCE
  73          RK     900  .00091   0.016            TRAP     0.0    25.0

  74          KK  WRUR10
  75          KM        TEMPE - RESIDENTIAL - 0.50
  76          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  77          BA  0.0980
  78          LS     3.0      70
  79          UD    0.57

  80          KK   COMB5
  81          KM        COMBINE RT5 - WRUR10 HYDROGRAPHS
  82          HC       2

  83          KK     RT6
  84          KM        ROUTE HYDROGRAPH TO WRUR11 CONFLUENCE
  85          RK     800  .00091   0.016            TRAP     0.0    25.0
```

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

 86           KK  WRUR11
 87           KM        TEMPE - RESIDENTIAL - 0.50
 88           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 89           BA  0.0830
 90           LS     3.0      70
 91           UD    0.45

 92           KK   COMB6
 93           KM        COMBINE RT6 - WRUR11 HYDROGRAPHS
 94           HC       2

 95           KK     RT7
 96           KM        ROUTE HYDROGRAPH TO BASIN OUTLET
 97           RK     900  .00091   0.016            TRAP     0.0    25.0

 98           KK  WRUR12
 99           KM        TEMPE - RESIDENTIAL - 0.16
100           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
101           BA  0.0580
102           LS     2.6      84
103           UD    0.48

104           KK  WRRUR7
105           KM        TEMPE - RESIDENTIAL - RANCHETTES (ON-LOT RETENTION)
106           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
107           BA  0.1210
108           LS     3.0      68
109           UD    0.57

110           KK     RT8
111           RK    1300  .00091   0.016            TRAP     0.0    25.0

112           KK  WRRUR8
113           KM        TEMPE - COMMERCIAL
114           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
115           BA  0.0300
116           LS     2.8      92
117           UD    0.33

118           KK     RT9
119           RK    2000  .00091   0.016            TRAP     0.0    25.0

120           KK  WRRUR9
121           KM        TEMPE - RESIDENTIAL - 0.50
122           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
123           BA  0.0990
124           LS     3.0      70
125           UD    0.43
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 126          KK   COMB7
 127          KM        COMBINE RT8 - RT9 - WRRUR9 HYDROGRAPHS
 128          HC       3

 129          KK    RT10
 130          KM        ROUTE COMB7 HYDROGRAPH TO BASIN OUTLET
 131          RK    2640  .00091   0.016            TRAP     0.0    25.0

 132          KK  OUTLET
 133          KM        COMBINE RT10 - RT7 - WRUR12 HYDROGRAPHS AT BASIN OUTLET
 134          HC       3
 135          KO       0       1                     21

 136          KK  OPTIMZ
 137          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
 138          KO       0       1                     21
 139          BA    1.00
 140          LS    2.83    75.7
 141          UD    0.75
 142          ZZ
```
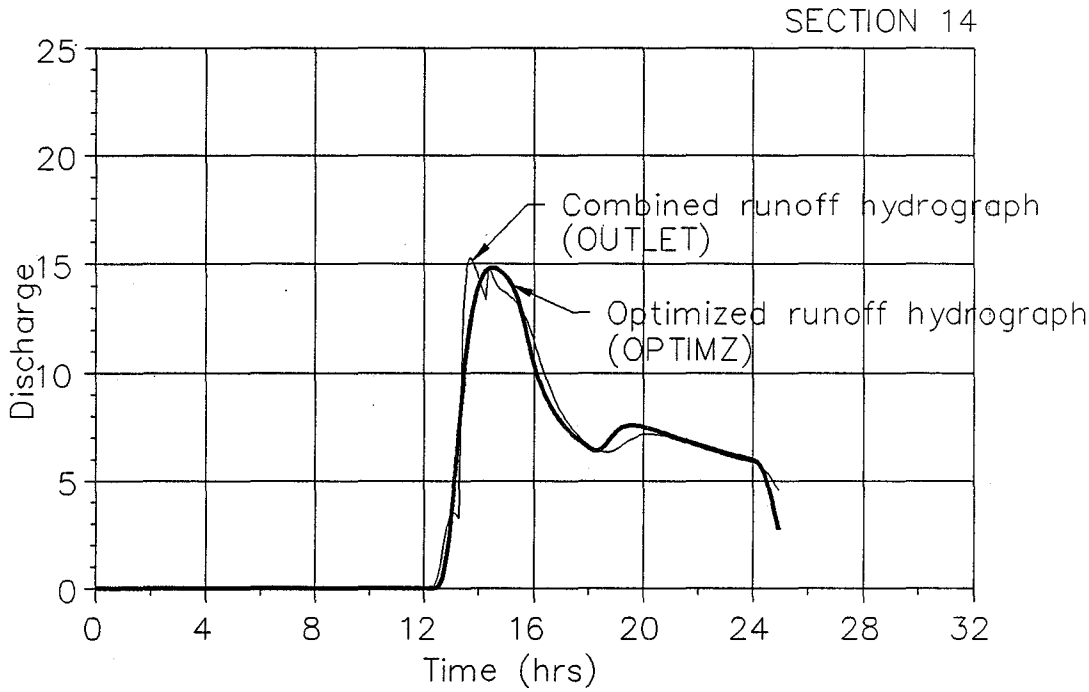
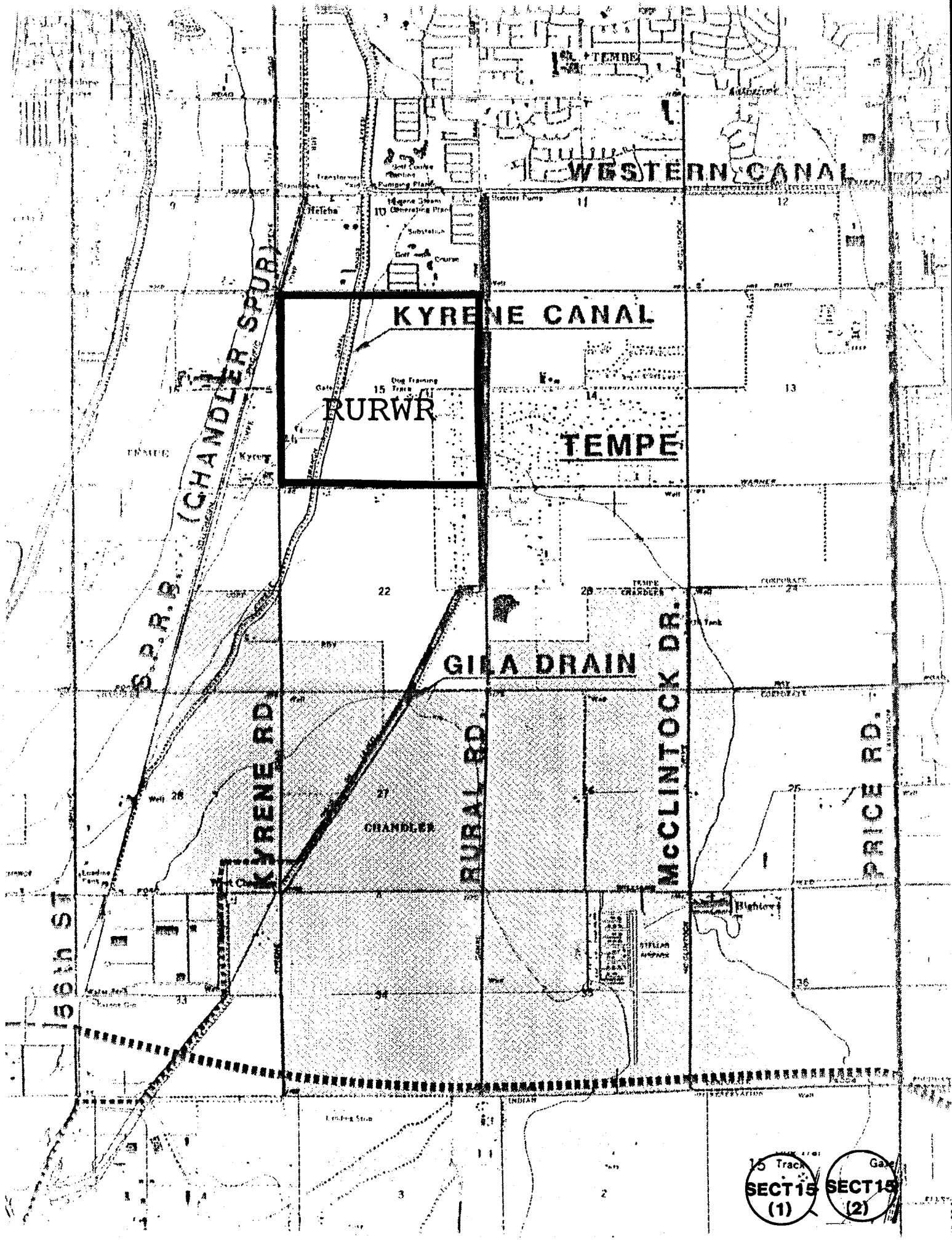

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	WRRUR1	0.	14.92	0.	0.	0.	.06		
ROUTED TO	RT1	0.	15.42	0.	0.	0.	.06		
HYDROGRAPH AT	WRRUR2	0.	14.92	0.	0.	0.	.06		
2 COMBINED AT	COMB1	1.	15.08	1.	0.	0.	.13		
ROUTED TO	RT2	1.	15.50	1.	0.	0.	.13		
HYDROGRAPH AT	WRRUR3	1.	15.08	1.	0.	0.	.13		
2 COMBINED AT	COMB2	2.	15.25	1.	0.	0.	.25		
ROUTED TO	RT3	2.	15.67	1.	0.	0.	.25		
HYDROGRAPH AT	WRRUR4	6.	13.08	3.	1.	1.	.10		
HYDROGRAPH AT	WRRUR5	0.	14.83	0.	0.	0.	.03		
3 COMBINED AT	COMB3	6.	13.08	3.	1.	1.	.38		
ROUTED TO	RT4	6.	13.33	3.	1.	1.	.38		
HYDROGRAPH AT	WRRUR6	7.	13.33	3.	1.	1.	.13		
2 COMBINED AT	COMB4	12.	13.33	7.	3.	3.	.50		
ROUTED TO	RT5	12.	13.42	7.	3.	3.	.50		
HYDROGRAPH AT	WRUR10	1.	15.08	0.	0.	0.	.10		
2 COMBINED AT	COMB5	12.	13.42	7.	3.	3.	.60		
ROUTED TO	RT6	12.	13.58	7.	3.	3.	.60		
HYDROGRAPH AT	WRUR11	1.	15.00	0.	0.	0.	.08		
2 COMBINED AT	COMB6	13.	13.58	8.	3.	3.	.68		
ROUTED TO	RT7	13.	13.75	7.	3.	3.	.68		
HYDROGRAPH AT	WRUR12	4.	13.08	2.	1.	1.	.06		
HYDROGRAPH AT	WRRUR7	1.	15.08	1.	0.	0.	.12		
ROUTED TO	RT8	1.	15.50	1.	0.	0.	.12		
HYDROGRAPH AT	WRRUR8	2.	13.25	1.	0.	0.	.03		
ROUTED TO	RT9	2.	13.75	1.	0.	0.	.03		

HYDROGRAPH AT	WRRUR9	1.	15.00	0.	0.	0.	.10
3 COMBINED AT	COMB7	3.	14.75	2.	1.	1.	.25
ROUTED TO	RT10	3.	15.42	2.	1.	1.	.25
3 COMBINED AT	OUTLET	15.	13.67	10.	4.	4.	.99
HYDROGRAPH AT	OPTIMZ	15.	14.50	10.	4.	4.	1.00



Runoff Hydrographs for Drainage Subarea WRRUR


WESTERN CANAL
KYRENE CANAL
RURWR
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
56th ST
CHANDLER
Tract
SECT 15
(1)
Gate
SECT 15
(2)

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 15  <RURWR>
  2           ID        FLOWS TO RURAL AND WARNER RD
  3           ID        AREA LOCATED IN SECTION 15 - WEST OF PRICE ROAD & SOUTH OF ELLIOT RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT      5                    300
 10           IN     30
 11           IO      5       0       0

 12           KK  RURWR1
 13           KM        TEMPE - AGRICULTURAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 15           PH      1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1530
 17           LS    1.5      83
 18           UD   0.82

 19           KK    RT1
 20           KM        ROUTE RURWR1 HYDROGRAPH TO RURWR2 CONFLUENCE
 21           RK   1000  .00220   0.016            TRAP     0.0    25.0

 22           KK  RURWR2
 23           KM        TEMPE - RESIDENTIAL - 0.16
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 25           BA  0.0970
 26           LS    2.6      84
 27           UD   0.38

 28           KK  RURWR3
 29           KM        TEMPE - RESIDENTIAL - 0.16
 30           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 31           BA  0.0700
 32           LS    2.6      84
 33           UD   0.53

 34           KK    RT2
 35           KM        ROUTE RURWR3 HYDROGRAPH TO RURWR2 CONFLUENCE
 36           RK   2600  .00220   0.016            TRAP     0.0    25.0

 37           KK   COMB1
 38           KM        COMBINE RT1 - RURWR2 - RT2 HYDROGRAPHS
 39           HC      3

 40           KK    RT3
 41           KM        ROUTE COMB1 HYDROGRAPH TO OUTLT1 (WARNER RD/RURAL RD)
 42           RK   2600  .00220   0.016            TRAP     0.0    25.0
```

15 Track SECT15 (1)
Gal SECT15 (2)

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

  43          KK  RURWR7
  44          KM        TEMPE - RESIDENTIAL - 0.16
  45          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  46          BA  0.1250
  47          LS     2.4      87
  48          UD    0.57

  49          KK     RT4
  50          KM        ROUTE RURWR7 TO RURWR6 CONFLUENCE
  51          RK    1350  .00220   0.016            TRAP     0.0    25.0

  52          KK  RURWR5
  53          KM        TEMPE - RESIDENTIAL - 0.16
  54          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  55          BA  0.0550
  56          LS    2.45      86
  57          UD    0.30

  58          KK     RT5
  59          KM        ROUTE RURWR5 TO RURWR6 CONFLUENCE
  60          RK    1300  .00220   0.016            TRAP     0.0    25.0

  61          KK  RURWR6
  62          KM        TEMPE - RESIDENTIAL - 0.16
  63          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  64          BA  0.0730
  65          LS    2.45      86
  66          UD    0.42

  67          KK   COMB2
  68          KM        COMBINE RT4 - RURWR6 - RT5 HYDROGRAPHS
  69          HC       3

  70          KK     RT6
  71          KM        ROUTE COMB2 TO OUTLT1  (WARNER/RURAL RD)
  72          RK    1300  .00091   0.016            TRAP     0.0    25.0

  73          KK  RURWR4
  74          KM        TEMPE - RESIDENTIAL - (RANCHETTES)
  75          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  76          BA  0.1220
  77          LS     3.0      68
  78          UD    0.60

  79          KK  OUTLT1
  80          KM        COMBINE RURWR4 - RT6 - RT3 HYDROGRAPHS TO GIVE OUTFLOW HYDROGRAPH
  81          KM        AT WARNER/RURAL RD BASIN OUTLET
  82          KO       0       1                    21
  83          HC       3
```

15 Track SECT15 (1) Gate SECT15 (2)

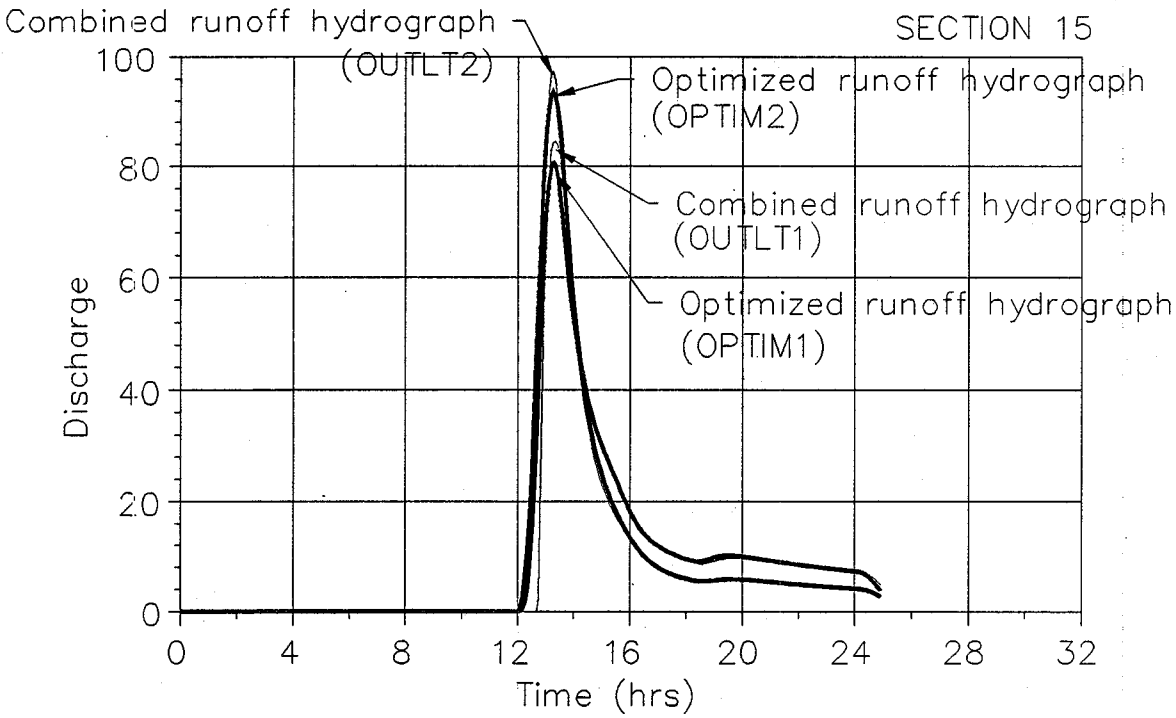
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 84           KK  OPTIM1
 85           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT1
 86           KO       0       1                      21
 87           BA    0.69
 88           LS    2.18    81.0
 89           UD    0.82

 90           KK  RURWR8
 91           KM        TEMPE - AG
 92           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 93           BA  0.1800
 94           LS     1.5      83
 95           UD    0.80

 96           KK     RT7
 97           KM        ROUTE HYDROGRAPH TO RURWR9 CONFLUENCE
 98           RK    2600  .00220   0.016            TRAP     0.0    25.0

 99           KK  RURWR9
100           KM        TEMPE - AG
101           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
102           BA  0.1250
103           LS     1.5      83
104           UD    0.93

105           KK  OUTLT2
106           KM        COMBINE RT7 - RURWR9 HYDROGRAPHS TO GIVE OUTLT2 HYDROGRAPH AT
107           KM        WARNER RD/KYRENE CANAL OUTLET
108           KO       0       1                      21
109           HC       2

110           KK  OPTIM2
111           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT2
112           KO       0       1                      21
113           BA    0.31
114           LS    1.45    83.0
115           UD    0.98
116           ZZ
```

15 Track SECT15 (1)
Gate SECT15 (2)

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

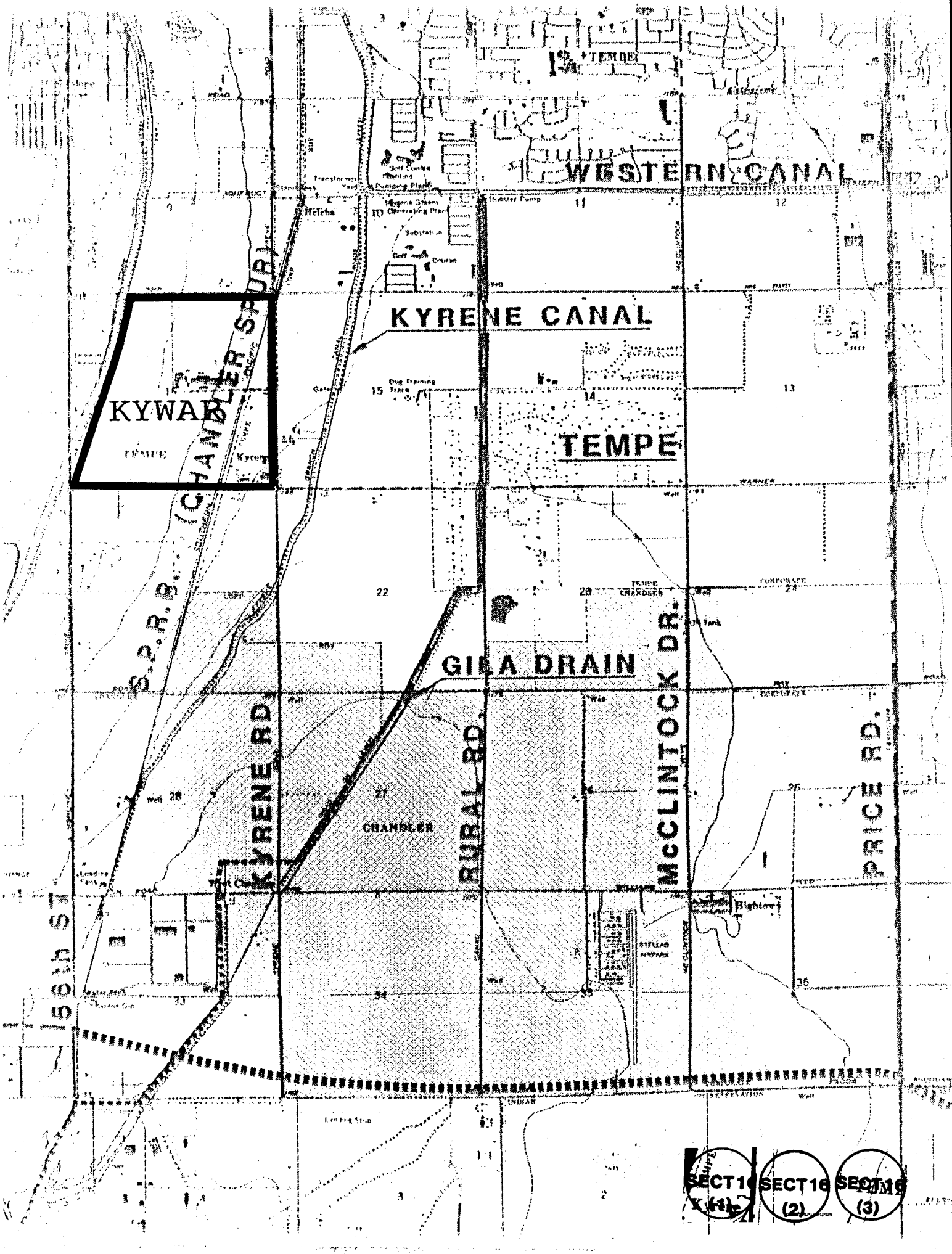
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	RURWR1	50.	13.08	15.	4.	4.	.15		
ROUTED TO	RT1	50.	13.17	15.	4.	4.	.15		
HYDROGRAPH AT	RURWR2	7.	12.92	3.	1.	1.	.10		
HYDROGRAPH AT	RURWR3	4.	13.17	2.	1.	1.	.07		
ROUTED TO	RT2	4.	13.50	2.	1.	1.	.07		
3 COMBINED AT	COMB1	58.	13.25	19.	6.	6.	.32		
ROUTED TO	RT3	57.	13.42	19.	6.	6.	.32		
HYDROGRAPH AT	RURWR7	16.	13.00	5.	2.	2.	.13		
ROUTED TO	RT4	16.	13.17	5.	2.	2.	.13		
HYDROGRAPH AT	RURWR5	8.	12.75	2.	1.	1.	.05		
ROUTED TO	RT5	8.	12.83	2.	1.	1.	.05		
HYDROGRAPH AT	RURWR6	9.	12.83	3.	1.	1.	.07		
3 COMBINED AT	COMB2	29.	13.00	10.	4.	3.	.25		
ROUTED TO	RT6	29.	13.17	10.	3.	3.	.25		
HYDROGRAPH AT	RURWR4	1.	15.17	1.	0.	0.	.12		
3 COMBINED AT	OUTLT1	84.	13.33	30.	10.	9.	.69		
HYDROGRAPH AT	OPTIM1	81.	13.25	31.	10.	10.	.69		
HYDROGRAPH AT	RURWR8	60.	13.08	18.	5.	5.	.18		
ROUTED TO	RT7	60.	13.25	18.	5.	5.	.18		
HYDROGRAPH AT	RURWR9	37.	13.17	12.	4.	3.	.13		
2 COMBINED AT	OUTLT2	97.	13.25	30.	9.	8.	.31		
HYDROGRAPH AT	OPTIM2	94.	13.25	31.	9.	9.	.31		

15 Track SECT 15 (1)
Gage SECT 15 (2)



Runoff Hydrographs for Drainage Subarea RURWR

15 Track
SECT 15
(1)
Gate
SECT 15
(2)


WESTERN CANAL
KYRENE CANAL
KYWAB
TEMPE
(CHANDLER SPUR)
S.P.R.R.
GILA DRAIN
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
16th St
SECT16 (1)
SECT16 (2)
SECT16 (3)

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 16  <KYWAR>
  2           ID        FLOWS TO KYRENE AND WARNER RDS
  3           ID        AREA LOCATED IN SECTION 16 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  KYWAR1
 13           KM        TEMPE - AGRICULTURAL
 14           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.0326
 17           LS     1.5      83
 18           UD    0.34

 19           KK     RT1
 20           KM        ROUTE KYWAR1 RUNOFF HYDROGRAPH TO OUTLT1
 21           RK    2800  0.0074   0.016            TRAP     0.0    25.0

 22           KK  KYWAR2
 23           KM        TEMPE - AGRICULTURAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 25           BA   .1026
 26           LS     1.5      83
 27           UD    0.36

 28           KK  OUTLT1
 29           KM        COMBINE RT1 - KYWAR2
 30           HC       2
 31           KO       0       1                     21

 32           KK  OPTIMZ
 33           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT1
 34           KO       0       1                     21
 35           BA    0.14
 36           LS    1.54    83.0
 37           UD    0.41

 38           KK  KYWAR3
 39           KM        TEMPE - AGRICULTURAL
 40           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 41           BA  0.1446
 42           LS     1.5      83
 43           UD    0.48
```

SECT16 (1) SECT16 (2) SECT16 (3)

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

  44          KK     RT2
  45          KM        ROUTE KYWAR3 RUNOFF HYDROGRAPH TO KYWAR5 CONFLUENCE
  46          RK    1900  0.0074   0.016            TRAP     0.0    25.0

  47          KK  KYWAR4
  48          KM        TEMPE - AGRICULTURAL
  49          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  50          BA   .0746
  51          LS     1.5      83
  52          UD    0.36

  53          KK  KYWAR5
  54          KM        TEMPE - AGRICULTURAL
  55          KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
  56          BA  0.1403
  57          LS     1.5      83
  58          UD    0.45

  59          KK   COMB1
  60          KM        COMBINE KYWAR5 - KYWAR4 - RT2
  61          HC       3

  62          KK     RT3
  63          KM        ROUTE COMB1 TO OUTLT2
  64          RK    2600  0.0074   0.016            TRAP     0.0    25.0

  65          KK  KYWAR6
  66          KM        TEMPE - AGRICULTURAL
  67          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  68          BA   .1376
  69          LS     1.5      83
  70          UD    0.46

  71          KK  OUTLT2
  72          HC       2
  73          KO       0       1                     21

  74          KK  OPTIM2
  75          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT2
  76          KO       0       1                     21
  77          BA    0.50
  78          LS    1.52    83.0
  79          UD    0.54

  80          KK  OUTLT3
  81          KM        TEMPE - INDUSTRIAL      (KYWAR7)
  82          KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
  83          KM        OUTLET AT 56TH STREET AND WARNER RD
  84          BA   .2256
  85          LS     3.0      88
  86          UD    0.39
  87          KO       0       1                     21
```

SECT16 (1) SECT16 (2) SECT16 (3)

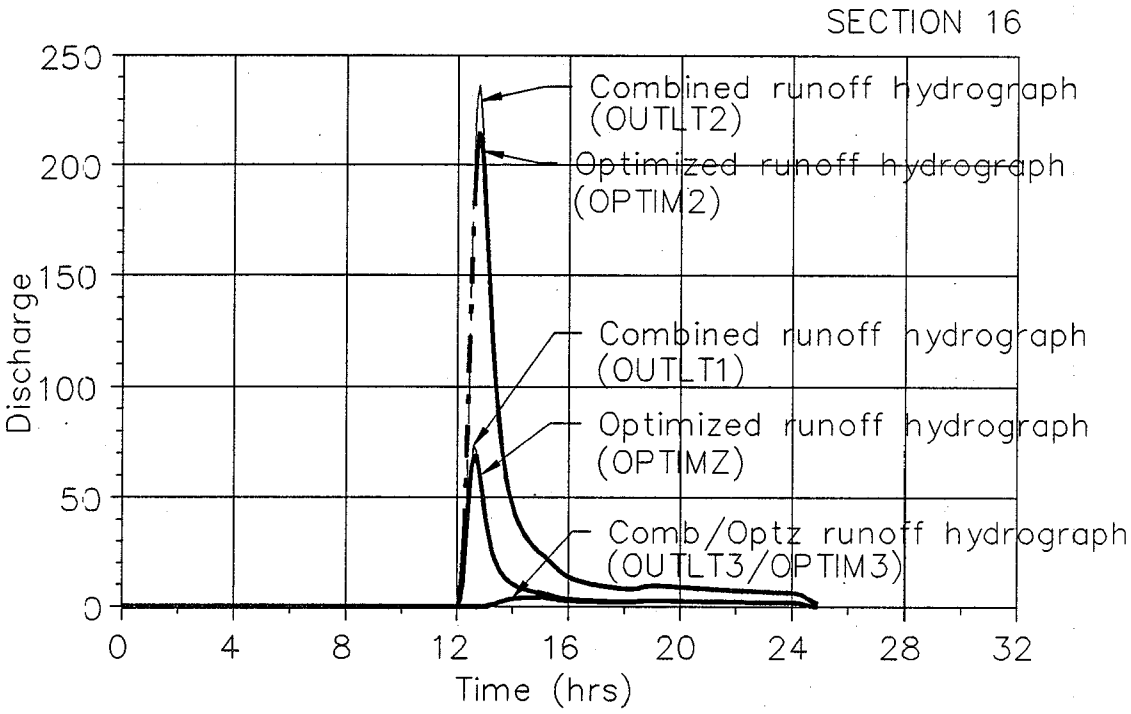
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  88          KK  OPTIM3
  89          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT3
  90          KO       0       1                      21
  91          BA    0.23
  92          LS    3.00    88.0
  93          UD    0.39
  94          ZZ
```

SECT16 (1) SECT16 (2) SECT16 (3)

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

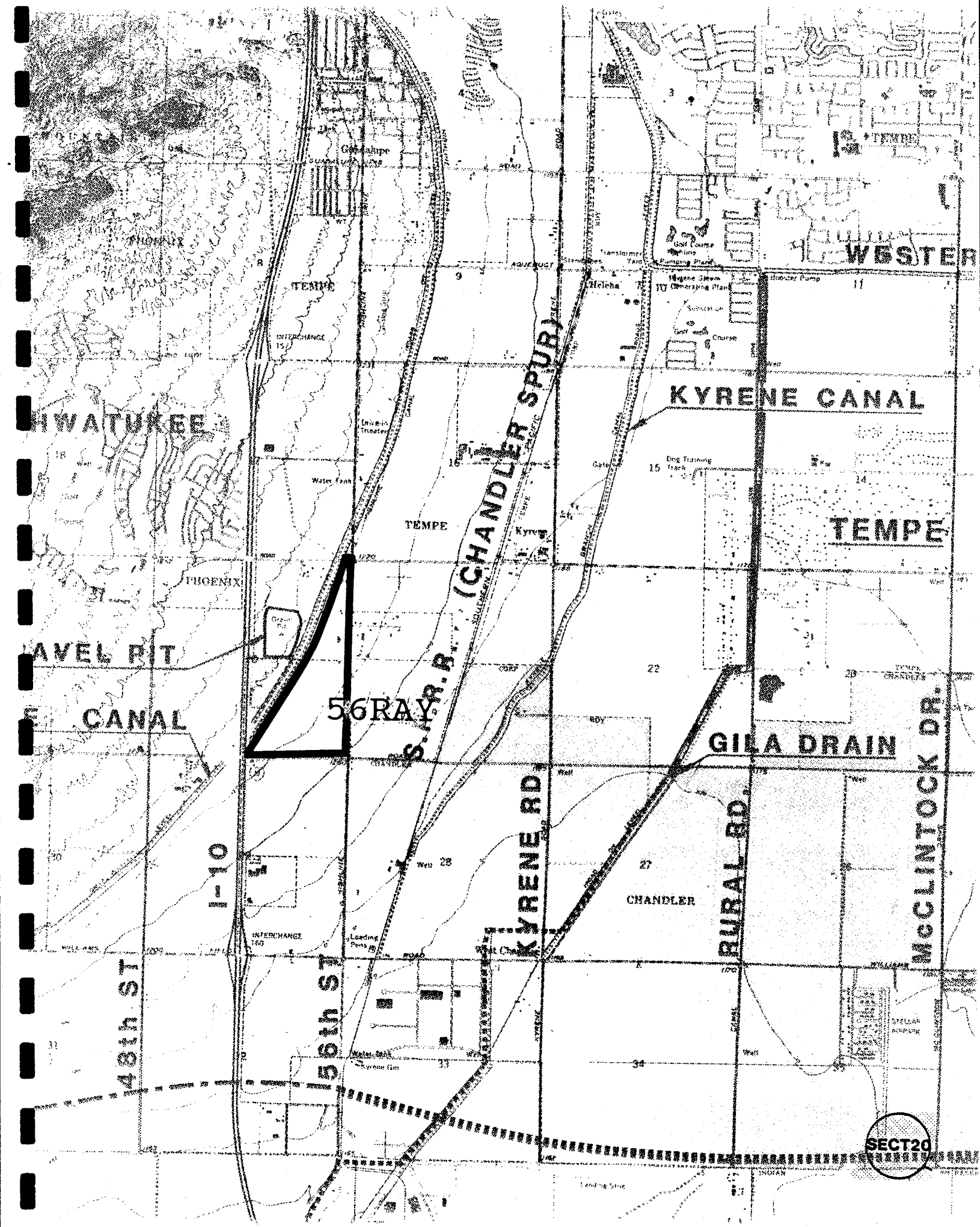
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	KYWAR1	18.	12.50	3.	1.	1.	.03		
ROUTED TO	RT1	18.	12.67	3.	1.	1.	.03		
HYDROGRAPH AT	KYWAR2	57.	12.58	10.	3.	3.	.10		
2 COMBINED AT	OUTLT1	73.	12.58	13.	4.	4.	.14		
HYDROGRAPH AT	OPTIMZ	69.	12.67	13.	4.	4.	.14		
HYDROGRAPH AT	KYWAR3	68.	12.67	14.	4.	4.	.14		
ROUTED TO	RT2	68.	12.75	14.	4.	4.	.14		
HYDROGRAPH AT	KYWAR4	41.	12.58	7.	2.	2.	.07		
HYDROGRAPH AT	KYWAR5	69.	12.67	14.	4.	4.	.14		
3 COMBINED AT	COMB1	172.	12.67	35.	10.	10.	.36		
ROUTED TO	RT3	171.	12.75	35.	10.	10.	.36		
HYDROGRAPH AT	KYWAR6	67.	12.67	14.	4.	4.	.14		
2 COMBINED AT	OUTLT2	236.	12.75	49.	14.	14.	.50		
HYDROGRAPH AT	OPTIM2	215.	12.75	49.	14.	14.	.50		
HYDROGRAPH AT	OUTLT3	4.	14.83	3.	1.	1.	.23		
HYDROGRAPH AT	OPTIM3	4.	14.83	3.	1.	1.	.23		

SECT16 (1) SECT16 (2) SECT16 (3)



Runoff Hydrographs for Drainage Subarea KYWAR

SECT16 (1) SECT16 (2) SECT16 (3)


WESTER
KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
I-10
48th ST
56th ST
CHANDLER
PHOENIX
56RAY
SECT20

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 20  <56RAY>
  2           ID        FLOWS TO 56TH AND RAY RDS
  3           ID        AREA LOCATED IN SECTION 20 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  56RAY1
 13           KM        TEMPE - AGRICULTURAL
 14           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.0315
 17           LS     1.5      83
 18           UD    0.22

 19           KK     RT1
 20           KM        ROUTE 56RAY1 RUNOFF HYDROGRAPH TO 56RAY2 CONFLUENCE
 21           RK    1300  0.0070   0.016            TRAP     0.0    25.0

 22           KK  56RAY2
 23           KM        TEMPE - AGRICULTURAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 25           BA   .0536
 26           LS     1.5      83
 27           UD    0.30

 28           KK   COMB1
 29           KM        COMBINE RT1 - 56RAY2
 30           HC       2

 31           KK     RT2
 32           KM        ROUTE COMB1 TO 56RAY3 CONFLUENCE
 33           RK    1400  0.0070   0.016            TRAP     0.0    25.0

 34           KK  56RAY3
 35           KM        TEMPE - AGRICULTURAL
 36           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 37           BA  0.0860
 38           LS     1.5      83
 39           UD    0.36

 40           KK   COMB2
 41           HC       2
```

SECT20

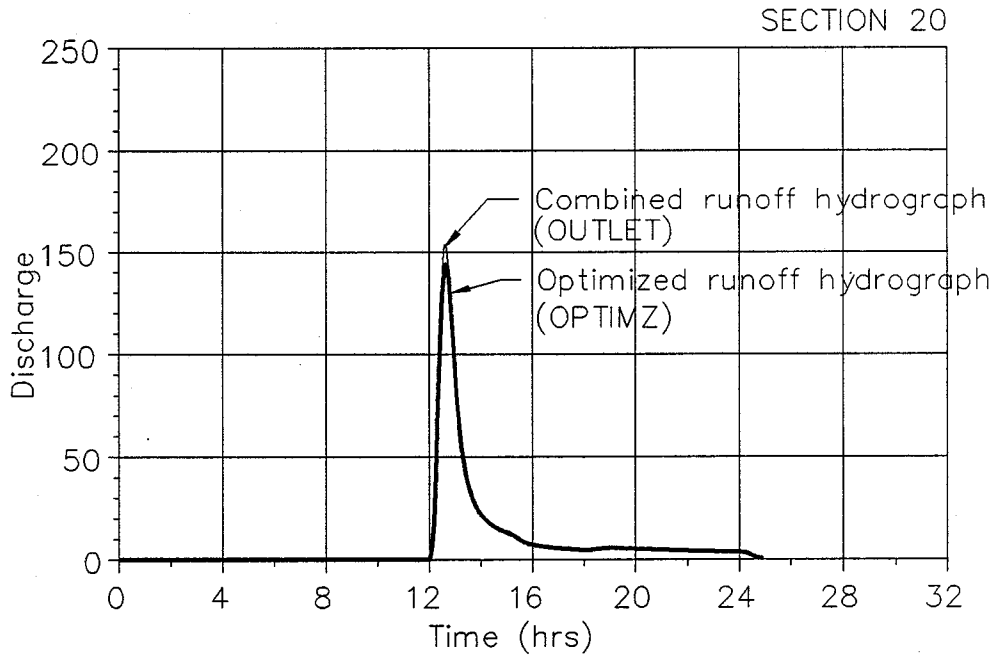
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  42          KK     RT3
  43          KM        ROUTE COMB2 TO 56RAY4 CONFLUENCE
  44          RK    1400  0.0070   0.016            TRAP     0.0    25.0

  45          KK  56RAY4
  46          KM        TEMPE - AGRICULTURAL
  47          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  48          BA   .1142
  49          LS     1.5      83
  50          UD    0.45

  51          KK  OUTLET
  52          HC       2
  53          KO       0       1                      21

  54          KK  OPTIMZ
  55          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
  56          KO       0       1                      21
  57          BA    0.29
  58          LS    1.51    83.0
  59          UD    0.43
  60          ZZ
```

SECT20

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

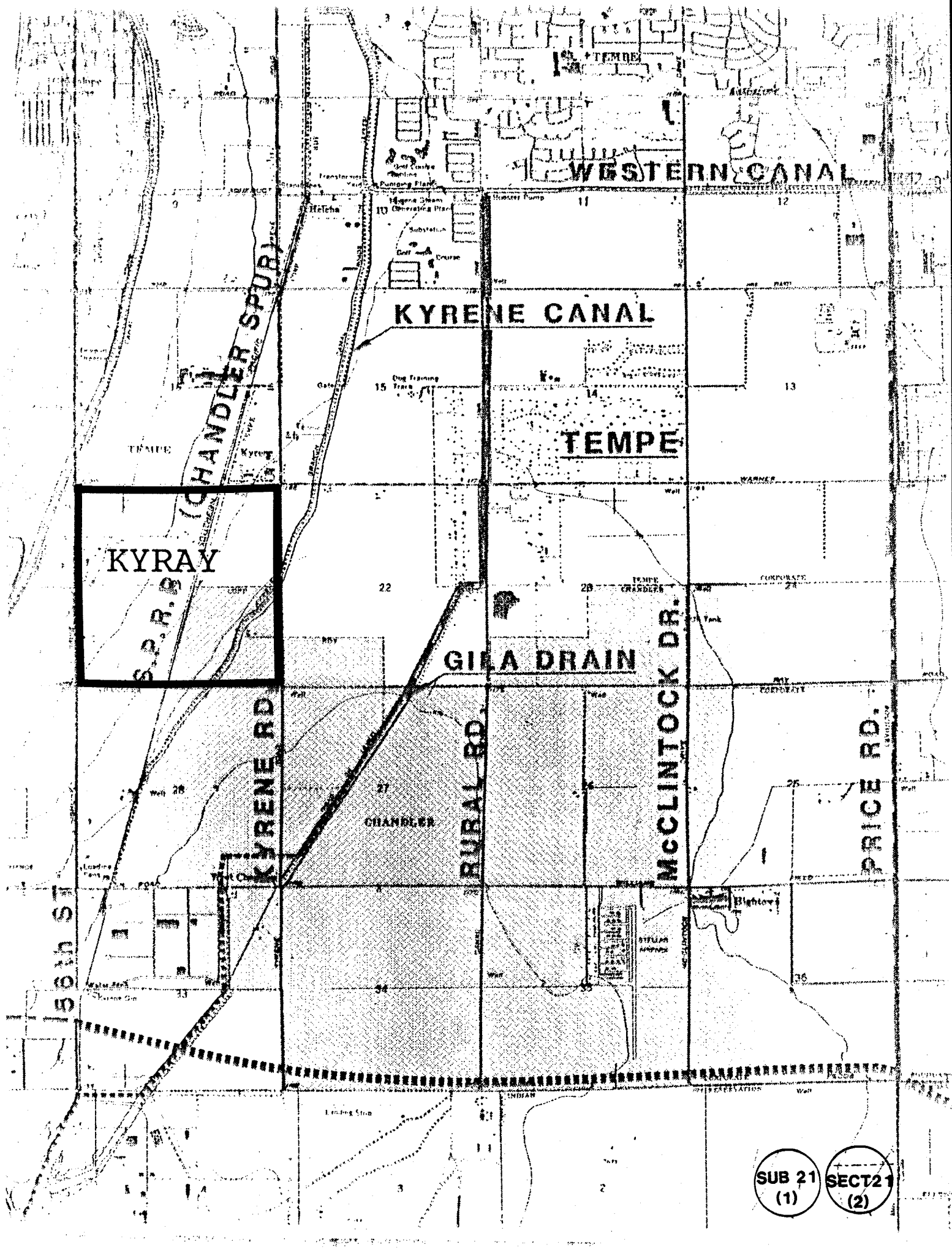
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	56RAY1	22.	12.33	3.	1.	1.	.03		
ROUTED TO	RT1	21.	12.42	3.	1.	1.	.03		
HYDROGRAPH AT	56RAY2	32.	12.50	5.	2.	1.	.05		
2 COMBINED AT	COMB1	53.	12.50	8.	2.	2.	.09		
ROUTED TO	RT2	53.	12.50	8.	2.	2.	.09		
HYDROGRAPH AT	56RAY3	48.	12.58	9.	2.	2.	.09		
2 COMBINED AT	COMB2	100.	12.50	17.	5.	5.	.17		
ROUTED TO	RT3	100.	12.58	17.	5.	5.	.17		
HYDROGRAPH AT	56RAY4	56.	12.67	11.	3.	3.	.11		
2 COMBINED AT	OUTLET	154.	12.58	28.	8.	8.	.29		
HYDROGRAPH AT	OPTIMZ	145.	12.67	28.	8.	8.	.29		

SECT20



Runoff Hydrographs for Drainage Subarea 56RAY

SECT20


WESTERN CANAL
KYRENE CANAL
TEMPE
KYRAY
(CHANDLER SPUR)
S.P.R.R.
GILA DRAIN
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
16th St
SUB 21 (1)
SECT21 (2)

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 21  <KYRAY>
  2           ID        FLOWS TO KYRENE AND RAY RDS
  3           ID        AREA LOCATED IN SECTION 21 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT      5                    300
 10           IN     30
 11           IO      5       0       0

 12           KK  KYRAY1
 13           KM        TEMPE - AGRICULTURAL
 14           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 15           PH      1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1759
 17           LS    1.5      83
 18           UD   0.50

 19           KK     RT1
 20           KM        ROUTE KYRAY1 RUNOFF HYDROGRAPH TO KYRAY2 CONFLUENCE
 21           RK   2700  0.0075   0.016            TRAP     0.0    25.0

 22           KK  KYRAY2
 23           KM        CHANDLER - AGRICULTURAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 25           BA   .2448
 26           LS    1.5      83
 27           UD   0.61

 28           KK  OUTLT1
 29           KM        COMBINE RT1 - KYRAY2
 30           HC      2
 31           KO      0       1                    21

 32           KK  OPTIM1
 33           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT1
 34           KO      0       1                    21
 35           BA   0.42
 36           LS   1.41    83.0
 37           UD   0.61

 38           KK  RRRAY3
 39           KM        TEMPE - AGRICULTURAL
 40           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 41           BA  0.0484
 42           LS    1.5      83
 43           UD   0.31
```

SUB 21 (1) SECT21 (2)

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

  44          KK     RT2
  45          KM        ROUTE RRRAY3 TO RRRAY4 CONFLUENCE
  46          RK    1600  0.0070   0.016            TRAP     0.0    25.0

  47          KK  RRRAY4
  48          KM        TEMPE - RESIDENTIAL - 1.0   (RANCHETTES)
  49          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  50          BA   .0775
  51          LS     3.0      68
  52          UD    0.29

  53          KK   COMB1
  54          HC       2

  55          KK     RT3
  56          KM        ROUTE COMB1 TO RRRAY7 CONFLUENCE
  57          RK    2300  0.0070   0.016            TRAP     0.0    25.0

  58          KK  RRRAY7
  59          KM        TEMPE - AGRICULTURAL
  60          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  61          BA   .2638
  62          LS     1.5      83
  63          UD    0.61

  64          KK   COMB2
  65          HC       2

  66          KK     RT3
  67          KM        ROUTE COMB2 TO RRRAY5 CONFLUENCE
  68          RK    2600  0.0070   0.016            TRAP     0.0    25.0

  69          KK  RRRAY5
  70          KM        TEMPE - AGRICULTURAL
  71          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  72          BA   .1236
  73          LS     1.5      83
  74          UD    0.50

  75          KK     RT4
  76          KM        ROUTE RRRAY5 TO RRRAY6 CONFLUENCE
  77          RK     500  0.0070   0.016            TRAP     0.0    25.0

  78          KK  RRRAY6
  79          KM        TEMPE - AGRICULTURAL
  80          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  81          BA   .0808
  82          LS     1.5      83
  83          UD    0.47
```

SUB 21 (1) SECT21 (2)

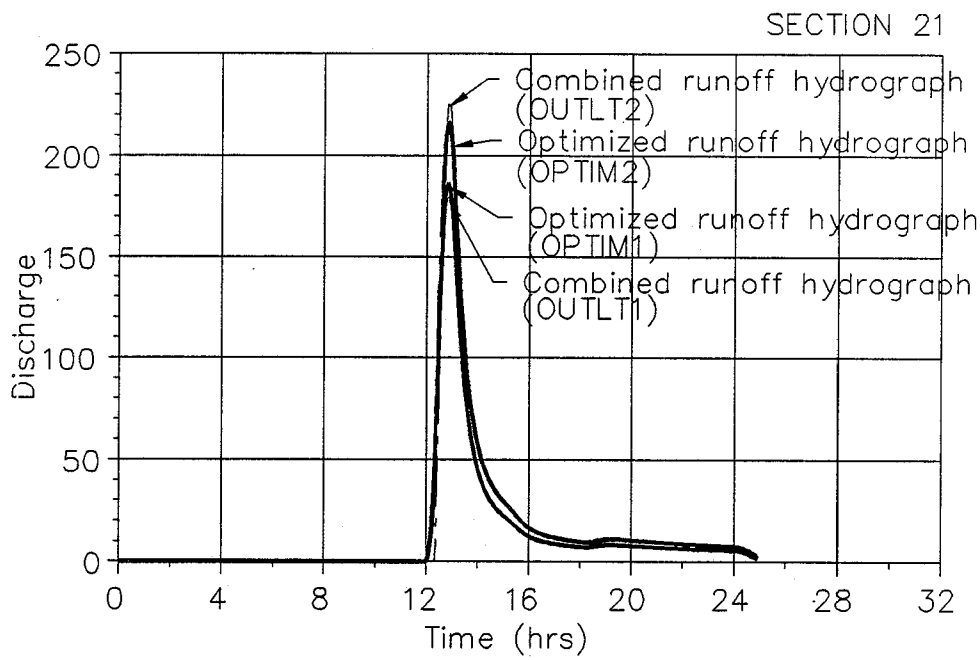
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  84          KK   COMB3
  85          HC       2

  86          KK     RT5
  87          KM        ROUTE COMB3 TO OUTLT2
  88          RK    2700  0.0070   0.016            TRAP     0.0    25.0

  89          KK  CUTLT2
  90          HC       2
  91          KO       0       1                     21

  92          KK  CPTIM2
  93          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT2
  94          KO       0       1                     21
  95          BA    0.59
  96          LS    1.60    83.0
  97          UD    0.60
  98          ZZ
```

SUB 21 (1) SECT 21 (2)

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

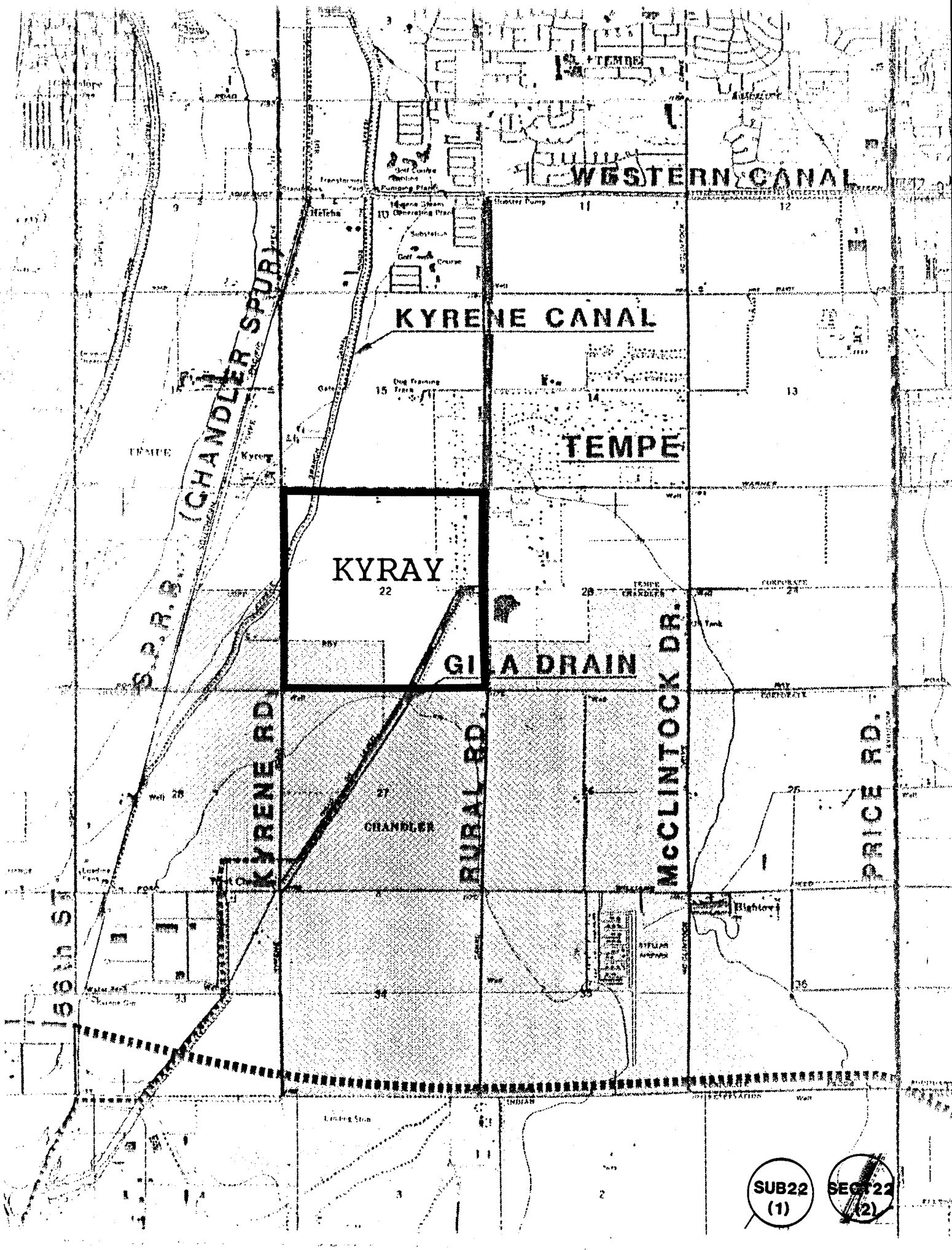
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	KYRAY1	81.	12.75	17.	5.	5.	.18		
ROUTED TO	RT1	81.	12.83	17.	5.	5.	.18		
HYDROGRAPH AT	KYRAY2	99.	12.83	24.	7.	7.	.24		
2 COMBINED AT	OUTLT1	180.	12.83	41.	12.	12.	.42		
HYDROGRAPH AT	OPTIM1	186.	12.83	44.	13.	12.	.42		
HYDROGRAPH AT	RRRAY3	29.	12.50	5.	1.	1.	.05		
ROUTED TO	RT2	29.	12.58	5.	1.	1.	.05		
HYDROGRAPH AT	RRRAY4	0.	15.00	0.	0.	0.	.08		
2 COMBINED AT	COMB1	29.	12.58	5.	2.	1.	.13		
ROUTED TO	RT3	28.	12.67	5.	2.	1.	.13		
HYDROGRAPH AT	RRRAY7	107.	12.83	26.	8.	7.	.26		
2 COMBINED AT	COMB2	133.	12.83	31.	9.	9.	.39		
ROUTED TO	RT3	133.	12.92	31.	9.	9.	.39		
HYDROGRAPH AT	RRRAY5	57.	12.75	12.	4.	3.	.12		
ROUTED TO	RT4	57.	12.75	12.	4.	3.	.12		
HYDROGRAPH AT	RRRAY6	39.	12.67	8.	2.	2.	.08		
2 COMBINED AT	COMB3	95.	12.75	20.	6.	6.	.20		
ROUTED TO	RT5	95.	12.83	20.	6.	6.	.20		
2 COMBINED AT	OUTLT2	225.	12.83	51.	15.	14.	.59		
HYDROGRAPH AT	OPTIM2	217.	12.83	53.	16.	15.	.59		

SUB 21 (1) SECT21 (2)



Runoff Hydrographs for Drainage Subarea KYRAY

SUB 21 (1) SECT21 (2)


WESTERN CANAL
KYRENE CANAL
TEMPE
KYRAY
22
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
160th St.
SUB22 (1)
SEC22 (2)

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 22  <KYRAY>
  2           ID        FLOWS TO KYRENE AND RAY RD
  3           ID        AREA LOCATED IN SECTION 22 - WEST OF PRICE ROAD & SOUTH OF WARNER RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  KYRAY1
 13           KM        TEMPE - RESIDENTIAL - 1.0  (RANCHETTES)
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1135
 17           LS     3.0      68
 18           UD    0.66

 19           KK  KYRAY2
 20           KM        TEMPE - RESIDENTIAL - 0.16
 21           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 22           BA  0.1430
 23           LS     2.6      84
 24           UD    0.37

 25           KK   COMB1
 26           KM        COMBINE KYRAY1 - KYRAY2
 27           HC       2

 28           KK     RT1
 29           KM        ROUTE COMB1 HYDROGRAPH TO KYRAY3 CONFLUENCE
 30           RK     800  .00260   0.016           TRAP     0.0    25.0

 31           KK  KYRAY3
 32           KM        TEMPE - RESIDENTIAL - 0.16
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 34           BA  0.0800
 35           LS   2.250      88
 36           UD    0.76

 37           KK  KYRAY4
 38           KM        TEMPE - RESIDENTIAL - 0.16
 39           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 40           BA  0.0800
 41           LS     2.6      84
 42           UD    0.55
```

SUB22 (1) SEC 22 (2)

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

  43          KK   COMB2
  44          KM        COMBINE RT1 - KYRAY3 - KYRAY4
  45          HC       3

  46          KK     RT2
  47          KM        ROUTE COMB2 TO KYRAY7 CONFLUENCE
  48          RK    2200  .00260   0.016            TRAP     0.0    25.0

  49          KK  MCRAY5
  50          KM        TEMPE - RESIDENTIAL - 0.25
  51          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  52          BA  0.1110
  53          LS    3.00      75
  54          UD    0.64

  55          KK  KYRAY6
  56          KM        TEMPE - AGRICULTURAL
  57          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  58          BA  0.0370
  59          LS    1.50      83
  60          UD    0.22

  61          KK   COMB3
  62          KM        COMBINE KYRAY5 - KYRAY6
  63          HC       2

  64          KK     RT3
  65          KM        ROUTE COMB3 TO KYRAY7 CONFLUENCE
  66          RK    1100  .00260   0.016            TRAP     0.0    25.0

  67          KK  KYRAY7
  68          KM        TEMPE - RESIDENTIAL - 0.16
  69          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  70          BA  0.1170
  71          LS    2.60      84
  72          UD    0.41

  73          KK   COMB4
  74          KM        COMBINE RT2 - RT3 - KYRAY7
  75          HC       3

  76          KK     RT4
  77          KM        ROUTE COMB4 TO OUTLET
  78          RK    2000  .00260   0.016            TRAP     0.0    25.0

  79          KK  KYRY10
  80          KM        CHANDLER - OPEN FIELD
  81          KM        COMPUTE RUNOFF HYDROGRAPH FOR OPEN FIELD
  82          BA  0.0670
  83          LS     0.5      88
  84          UD    0.36
```

SUB22 (1) SEC 22 (2)

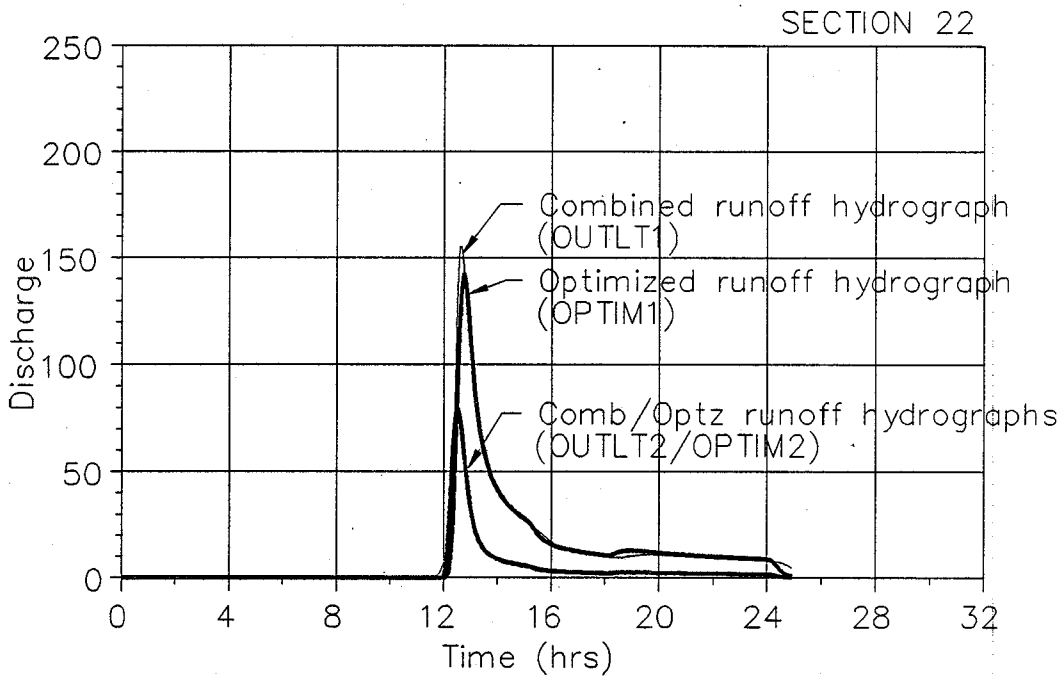
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 85           KK     RT5
 86           KM        ROUTE KYRY10 TO OUTLET
 87           RK    1300  .00038   0.016            TRAP     0.0    25.0

 88           KK  KYRY11
 89           KM        CHANDLER - AGRICULTURAL
 90           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 91           BA  0.0670
 92           LS     1.5      88
 93           UD    0.46

 94           KK  OUTLT1
 95           KM        COMBINE RT5 - KYRY11 - RT4
 96           HC       3
 97           KO       0       1                     21

 98           KK  OPTIM1
 99           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT1
100           KO       0       1                     21
101           BA    0.82
102           LS    2.26    83.0
103           UD    0.38

104           KK  KYRAY8
105           KM        TEMPE - OPEN FIELD
106           KM        COMPUTE RUNOFF HYDROGRAPH FOR OPEN FIELD
107           BA  0.0670
108           LS     0.5      83
109           UD    0.34

110           KK     RT6
111           KM        ROUTE KYRAY8 TO GILA DRAIN LOW POINT IN RAY ROAD
112           RK     500  .00038   0.016            TRAP     0.0    25.0

113           KK  KYRAY9
114           KM        TEMPE - RESIDENTIAL - 0.16
115           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
116           BA  0.0670
117           LS     2.6      84
118           UD    0.28

119           KK  OUTLT2
120           KM        COMBINE RT6 - KYRAY9 AT GILA DRAIN LOW POINT IN RAY ROAD
121           KO       0       1                     21
122           HC       2

123           KK  OPTIM2
124           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT2
125           KO       0       1                     21
126           BA    0.13
127           LS    1.45    83.0
128           UD    0.33
129           ZZ
```

SUB22 (1) SEC 22 (2)

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

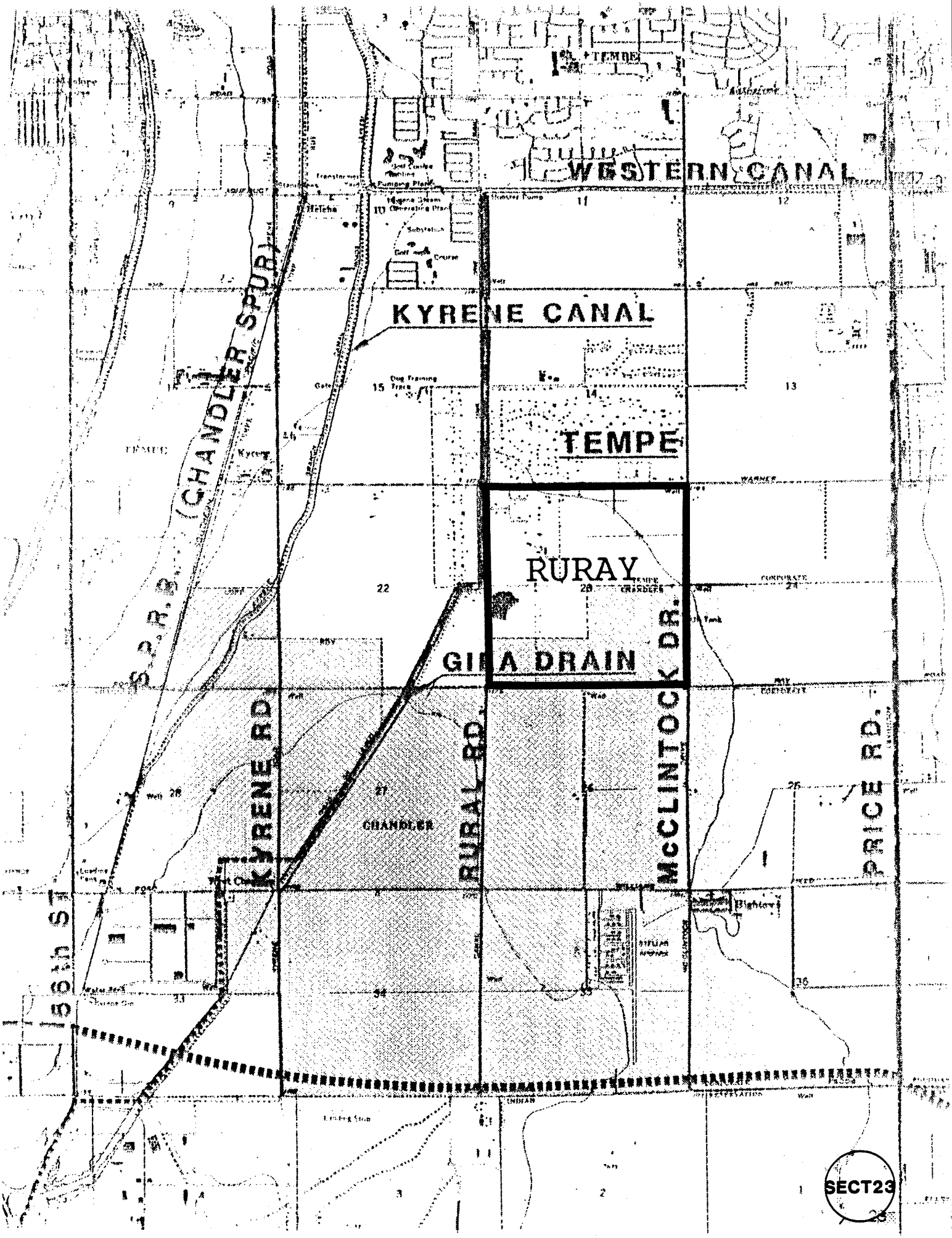
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	KYRAY1	1.	15.17	0.	0.	0.	.11		
HYDROGRAPH AT	KYRAY2	10.	12.92	4.	1.	1.	.14		
2 COMBINED AT	COMB1	10.	12.92	4.	2.	2.	.26		
ROUTED TO	RT1	10.	13.00	4.	2.	2.	.26		
HYDROGRAPH AT	KYRAY3	12.	13.17	5.	1.	1.	.08		
HYDROGRAPH AT	KYRAY4	5.	13.17	2.	1.	1.	.08		
3 COMBINED AT	COMB2	26.	13.08	11.	4.	4.	.42		
ROUTED TO	RT2	26.	13.25	11.	4.	4.	.42		
HYDROGRAPH AT	MCRAY5	1.	15.17	1.	0.	0.	.11		
HYDROGRAPH AT	KYRAY6	25.	12.33	4.	1.	1.	.04		
2 COMBINED AT	COMB3	25.	12.33	4.	1.	1.	.15		
ROUTED TO	RT3	25.	12.42	4.	1.	1.	.15		
HYDROGRAPH AT	KYRAY7	8.	12.92	3.	1.	1.	.12		
3 COMBINED AT	COMB4	37.	13.17	18.	6.	6.	.68		
ROUTED TO	RT4	37.	13.33	18.	6.	6.	.68		
HYDROGRAPH AT	KYRY10	91.	12.42	14.	4.	4.	.07		
ROUTED TO	RT5	91.	12.58	14.	4.	4.	.07		
HYDROGRAPH AT	KYRY11	40.	12.67	8.	2.	2.	.07		
3 COMBINED AT	OUTLT1	155.	12.67	39.	12.	12.	.82		
HYDROGRAPH AT	OPTIM1	143.	12.75	37.	12.	12.	.82		
HYDROGRAPH AT	KYRAY8	80.	12.42	12.	3.	3.	.07		
ROUTED TO	RT6	79.	12.50	12.	3.	3.	.07		
HYDROGRAPH AT	KYRAY9	5.	12.75	2.	1.	1.	.07		
2 COMBINED AT	OUTLT2	81.	12.50	14.	4.	4.	.13		
HYDROGRAPH AT	OPTIM2	79.	12.50	13.	4.	4.	.13		

SUB22 (1) SEC 22 (2)



Runoff Hydrographs for Drainage Subarea KYRAY (Sect. 22)

SUB22 (1) SECT22 (2)


TEMPE
WESTERN CANAL
KYRENE CANAL
TEMPE
RURAY
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
16th ST
SECT23

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 23  <RURAY>
  2           ID        FLOWS TO RURAL AND RAY RD
  3           ID        AREA LOCATED IN SECTION 23 - WEST OF PRICE ROAD & SOUTH OF WARNER RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  RURAY1
 13           KM        TEMPE - RESIDENTIAL - 0.25
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.0650
 17           LS     3.0      76
 18           UD    0.35

 19           KK  RURAY2
 20           KM        TEMPE - RESIDENTIAL - 0.25
 21           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 22           BA  0.0650
 23           LS     3.0      75
 24           UD    0.42

 25           KK   COMB1
 26           KM        COMBINE RT1 - RURAY2
 27           HC       2

 28           KK     RT2
 29           KM        ROUTE COMB1 HYDROGRAPH TO RURAY4 CONFLUENCE
 30           RK    1300  .00150   0.016            TRAP     0.0    25.0

 31           KK  RURAY3
 32           KM        TEMPE - RESIDENTIAL - 0.25
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 34           BA  0.0750
 35           LS     3.0      75
 36           UD    0.28

 37           KK     RT3
 38           KM        ROUTE RURAY3 HYDROGRAPH TO RURAY4 CONFLUENCE
 39           RK    1200  .00150   0.016            TRAP     0.0    25.0

 40           KK  RURAY4
 41           KM        TEMPE - RESIDENTIAL - 0.25
 42           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 43           BA  0.0650
 44           LS     3.0      75
 45           UD    0.37
```

SECT23

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

  46          KK   COMB2
  47          KM        COMBINE RT2 - RURAY4 - RT3
  48          HC       3

  49          KK     RT4
  50          KM        ROUTE COMB2 TO RURAY6 CONFLUENCE
  51          RK    1300  .00150   0.016            TRAP     0.0    25.0

  52          KK  RURAY5
  53          KM        TEMPE - RESIDENTIAL - 0.16
  54          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  55          BA  0.0300
  56          LS    2.60      84
  57          UD    0.27

  58          KK  RURAY6
  59          KM        TEMPE - RESIDENTIAL - 0.25
  60          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  61          BA  0.1010
  62          LS    3.00      75
  63          UD    0.65

  64          KK   COMB3
  65          KM        COMBINE RT4 - RURAY5 - RURAY6
  66          HC       3

  67          KK     RT5
  68          KM        ROUTE COMB3 TO RURAY7 CONFLUENCE
  69          RK    1250  .00150   0.016            TRAP     0.0    25.0

  70          KK  RURAY7
  71          KM        TEMPE - RESIDENTIAL - 1.0  (RANCHETTES)
  72          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  73          BA  0.1230
  74          LS    3.00      68
  75          UD    0.70

  76          KK   COMB4
  77          KM        COMBINE RT5 - RURAY7
  78          HC       2

  79          KK     RT6
  80          KM        ROUTE COMB4 TO RURY12 CONFLUENCE
  81          RK     900  .00057   0.016            TRAP     0.0    25.0

  82          KK  RURY12
  83          KM        TEMPE - COMMERCIAL
  84          KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL SITE
  85          BA  0.0270
  86          LS    2.80      92
  87          UD    0.20
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SECT23

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

 88           KK   COMB5
 89           KM        COMBINE RT6 - RURY12
 90           HC       2

 91           KK     RT7
 92           KM        ROUTE COMB5 TO RURY11 CONFLUENCE
 93           RK     400  .00057   0.016            TRAP     0.0    25.0

 94           KK  RURY10
 95           KM        TEMPE - RESIDENTIAL - 0.16
 96           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 97           BA  0.0230
 98           LS     2.6      84
 99           UD    0.27

100           KK  RURY11
101           KM        TEMPE - RESIDENTIAL - 0.25
102           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
103           BA  0.0700
104           LS     3.0      75
105           UD    0.53

106           KK   COMB6
107           KM        COMBINE RT7 - RURY10 - RURY11
108           HC       3

109           KK     RT8
110           KM        ROUTE COMB6 TO OUTLET
111           RK    1300  .00057   0.016            TRAP     0.0    25.0

112           KK  RURAY8
113           KM        CHANDLER - RESIDENTIAL - 0.16
114           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
115           BA  0.1700
116           LS     2.9      84
117           UD    0.47

118           KK     RT9
119           KM        ROUTE RURAY8 TO RURY15 CONFLUENCE
120           RK     800  .00150   0.016            TRAP     0.0    25.0

121           KK  RURAY9
122           KM        CHANDLER - COMMERCIAL
123           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL AREA
124           BA  0.0340
125           LS     3.0      92
126           UD    0.18

127           KK    RT10
128           KM        ROUTE RURAY9 TO RURY15 CONFLUENCE
129           RK    1500  .00110   0.016            TRAP     0.0    25.0
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SECT23

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

 130          KK  RURY15
 131          KM        CHANDLER - RESIDENTIAL - 0.16
 132          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 133          BA  0.0410
 134          LS     2.9      84
 135          UD    0.22

 136          KK   COMB7
 137          KM        COMBINE RT9 - RURY15 - RT10
 138          HC       3

 139          KK    RT11
 140          KM        ROUTE COMB7 TO RURY13 CONFLUENCE
 141          RK    2000  .00110   0.016            TRAP     0.0    25.0

 142          KK  RURY13
 143          KM        CHANDLER - RESIDENTIAL - 0.16
 144          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 145          BA  0.1070
 146          LS     2.9      84
 147          UD    0.38

 148          KK   COMB8
 149          KM        COMBINE RURY13 - RT11
 150          HC       2

 151          KK    RT12
 152          KM        ROUTE COMB8 TO RURY14 CONFLUENCE
 153          RK    1000  .00110   0.016            TRAP     0.0    25.0

 154          KK  RURY14
 155          KM        CHANDLER - COMMERCIAL
 156          KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL AREA
 157          BA  0.0280
 158          LS     3.0      92
 159          UD    0.22

 160          KK  OUTLET
 161          KM        COMBINE RT8 - RT12 - RURY14
 162          HC       3
 163          KO       0       1                     21

 164          KK  OPTIMZ
 165          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
 166          KO       0       1                     21
 167          BA    1.00
 168          LS    2.97    83.0
 169          UD    0.78
 170          ZZ
```
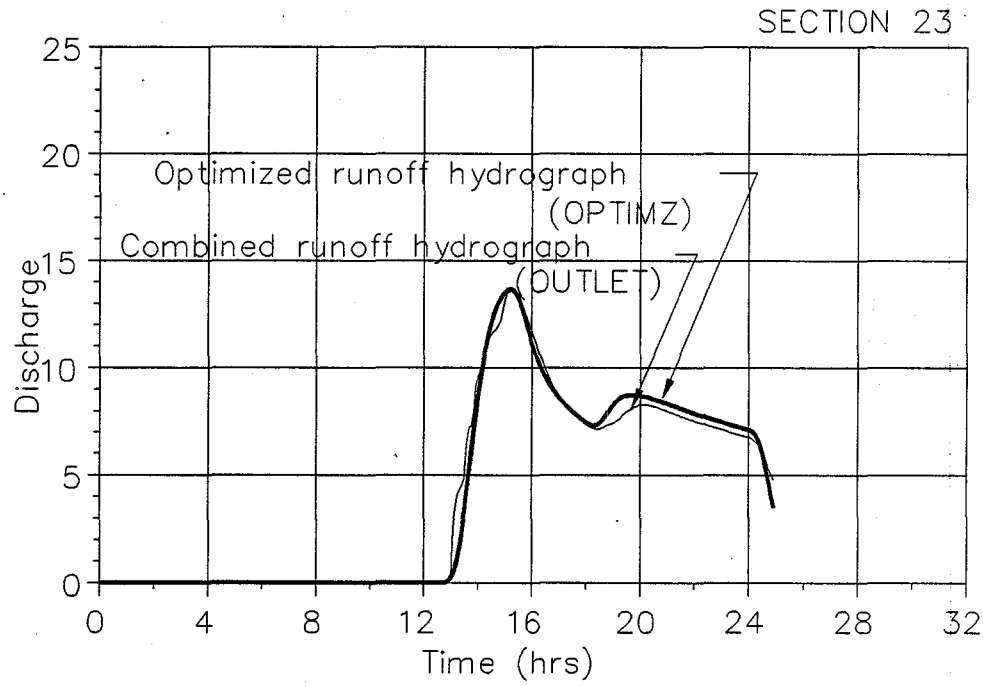

SECT23

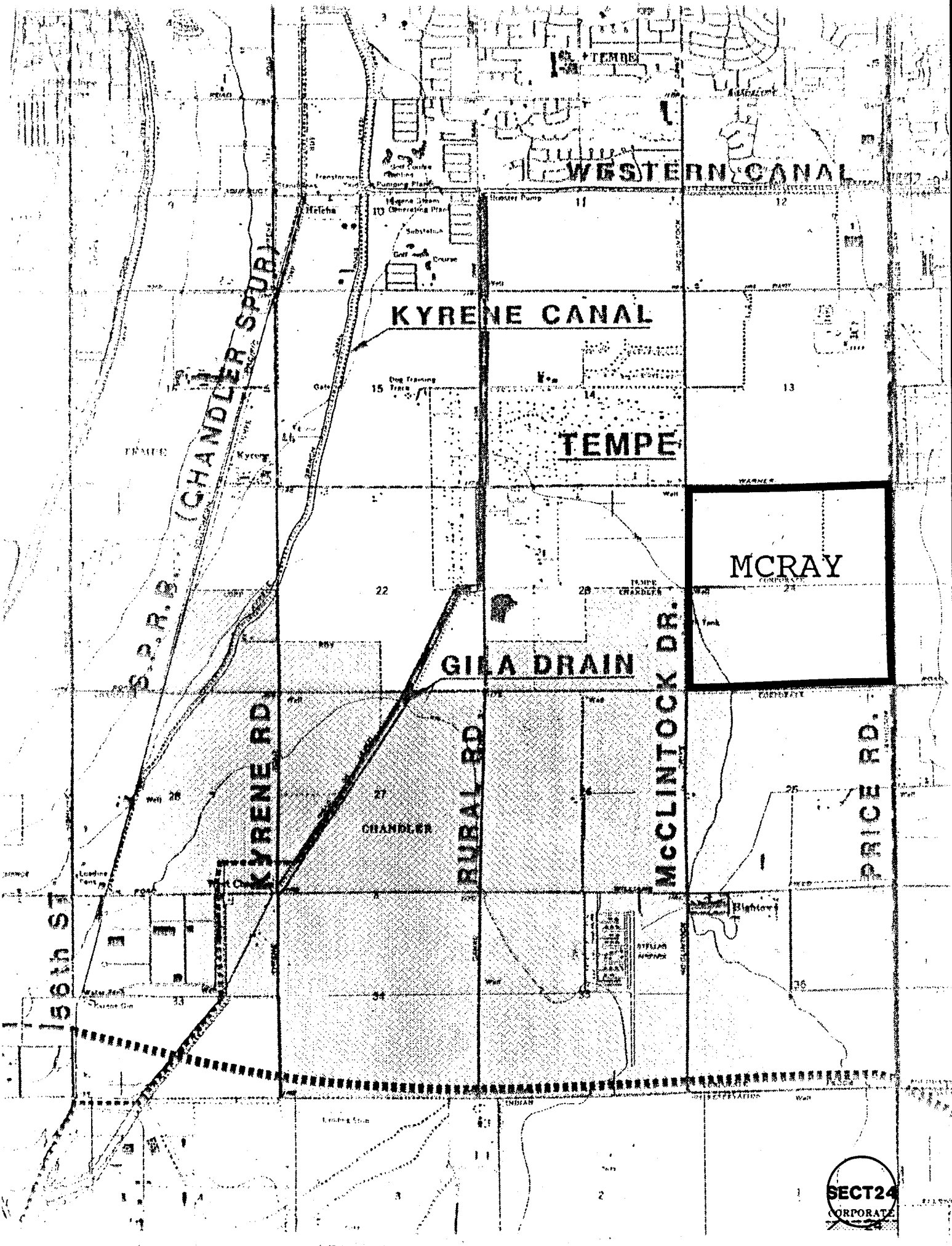
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	RURAY1	1.	14.92	0.	0.	0.	.06		
HYDROGRAPH AT	RURAY2	1.	15.00	0.	0.	0.	.06		
2 COMBINED AT	COMB1	1.	15.00	1.	0.	0.	.13		
ROUTED TO	RT2	1.	15.25	1.	0.	0.	.13		
HYDROGRAPH AT	RURAY3	1.	14.92	0.	0.	0.	.08		
ROUTED TO	RT3	1.	15.25	0.	0.	0.	.08		
HYDROGRAPH AT	RURAY4	1.	14.92	0.	0.	0.	.06		
3 COMBINED AT	COMB2	2.	15.08	2.	1.	1.	.27		
ROUTED TO	RT4	2.	15.33	2.	1.	1.	.27		
HYDROGRAPH AT	RURAY5	2.	12.75	1.	0.	0.	.03		
HYDROGRAPH AT	RURAY6	1.	15.17	1.	0.	0.	.10		
3 COMBINED AT	COMB3	4.	15.08	3.	1.	1.	.40		
ROUTED TO	RT5	4.	15.25	3.	1.	1.	.40		
HYDROGRAPH AT	RURAY7	1.	15.25	1.	0.	0.	.12		
2 COMBINED AT	COMB4	5.	15.25	3.	1.	1.	.52		
ROUTED TO	RT6	5.	15.50	3.	1.	1.	.52		
HYDROGRAPH AT	RURY12	1.	13.00	1.	0.	0.	.03		
2 COMBINED AT	COMB5	5.	15.08	4.	2.	2.	.55		
ROUTED TO	RT7	5.	15.17	4.	2.	2.	.55		
HYDROGRAPH AT	RURY10	2.	12.75	1.	0.	0.	.02		
HYDROGRAPH AT	RURY11	1.	15.08	0.	0.	0.	.07		
3 COMBINED AT	COMB6	6.	15.17	5.	2.	2.	.64		
ROUTED TO	RT8	6.	15.42	5.	2.	2.	.64		
HYDROGRAPH AT	RURAY8	3.	14.25	2.	1.	1.	.17		
ROUTED TO	RT9	3.	14.42	2.	1.	1.	.17		
HYDROGRAPH AT	RURAY9	1.	14.25	1.	0.	0.	.03		

ROUTED TO	RT10	1.	14.58	1.	0.	0.	.03
HYDROGRAPH AT	RURY15	1.	13.83	1.	0.	0.	.04
3 COMBINED AT	COMB7	5.	14.42	3.	1.	1.	.25
ROUTED TO	RT11	5.	14.75	3.	1.	1.	.25
HYDROGRAPH AT	RURY13	2.	14.08	1.	1.	1.	.11
2 COMBINED AT	COMB8	7.	14.67	5.	2.	2.	.35
ROUTED TO	RT12	7.	14.83	5.	2.	2.	.35
HYDROGRAPH AT	RURY14	1.	14.25	0.	0.	0.	.03
3 COMBINED AT	OUTLET	14.	15.25	10.	4.	4.	1.02
HYDROGRAPH AT	OPTIMZ	14.	15.17	10.	4.	4.	1.00



Runoff Hydrographs for Drainage Subarea RURAY


TEMPE
WESTERN CANAL
KYRENE CANAL
TEMPE
MCRAY
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
156th St
SECT24
CORPORATE

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 24  <MCRAY>
  2           ID        FLOWS TO MCCLINTOCK AND RAY RD
  3           ID        AREA LOCATED IN SECTION 24 - WEST OF PRICE ROAD & SOUTH OF WARNER RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT      5                    300
 10           IN     30
 11           IO      5       0       0

 12           KK  MCRAY1
 13           KM        TEMPE - RESIDENTIAL 0.25
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 15           PH      1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1030
 17           LS    2.7      81
 18           UD   0.53

 19           KK  MCRAY2
 20           KM        TEMPE - RESIDENTIAL - 0.25
 21           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 22           BA  0.0970
 23           LS    3.0      75
 24           UD   0.63

 25           KK  MCRAY3
 26           KM        TEMPE - RESIDENTIAL - 0.25
 27           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 28           BA  0.0970
 29           LS    3.0      75
 30           UD   0.63

 31           KK   COMB1
 32           KM        COMBINE MCRAY1 - MCRAY2 - MCRAY3 AT RETENTION BASIN SITE
 33           HC      3

 34           KK     RT1
 35           KM        ROUTE COMB1 HYDROGRAPH ALONG WARNER AND MCCLINTOCK TO
 36           KM        MCRAY7 OUTLET
 37           RK   5280  .00076   0.016            TRAP     0.0    25.0

 38           KK  MCRAY4
 39           KM        TEMPE - RESIDENTIAL - 0.16
 40           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 41           BA  0.0440
 42           LS    2.3      88
 43           UD   0.38
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SECT24
CORPORATE

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

  44          KK     RT2
  45          KM        ROUTE MCRAY4 TO RETENTION BASIN SITE
  46          RK     500  .00160   0.016            TRAP     0.0    25.0

  47          KK  MCRAY5
  48          KM        TEMPE - RESIDENTIAL - 0.16
  49          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  50          BA  0.0670
  51          LS    2.55      85
  52          UD    0.50

  53          KK  MCRAY6
  54          KM        TEMPE - RESIDENTIAL - 0.16
  55          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  56          BA  0.0240
  57          LS    2.60      84
  58          UD    0.22

  59          KK  MCRAY7
  60          KM        TEMPE - RESIDENTIAL - 0.16
  61          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  62          BA  0.0990
  63          LS    2.55      85
  64          UD    0.30

  65          KK   COMB2
  66          KM        COMBINE RT2 - MCRAY5 - MCRAY6 - MCRAY7 AT RETENTION SITE
  67          HC       4

  68          KK   COMB3
  69          KM        COMBINE COMB2 - RT1
  70          HC       2

  71          KK     RT3
  72          KM        ROUTE COMB3 TO OUTLET AT MCCLINTOCK/RAY RD
  73          RK    2600  .00057   0.016            TRAP     0.0    25.0

  74          KK  MCRAY8
  75          KM        CHANDLER - RESIDENTIAL - 0.16
  76          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  77          BA  0.1210
  78          LS     2.9      84
  79          UD    0.33

  80          KK     RT4
  81          KM        ROUTE MCRAY8 TO MCRAY9 CONFLUENCE
  82          RK    1300  .00160   0.016            TRAP     0.0    25.0

  83          KK  MCRAY9
  84          KM        CHANDLER - RESIDENTIAL - 0.16
  85          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  86          BA  0.1290
  87          LS     2.9      84
  88          UD    0.45
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SECT24 CORPORATE

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

 89           KK   COMB4
 90           KM        COMBINE RT4 - MCRAY9
 91           HC       2

 92           KK     RT5
 93           KM        ROUTE COMB4 TO BASIN OUTLET AT MCCLINTOCK/RAY RD
 94           RK    2600  .00170   0.016            TRAP     0.0    25.0

 95           KK  MCRY10
 96           KM        CHANDLER - RESIDENTIAL - 0.16
 97           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
 98           BA  0.1250
 99           LS     2.9      84
100           UD    0.38

101           KK  MCRY11
102           KM        CHANDLER - RESIDENTIAL - 0.16
103           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
104           BA  0.1250
105           LS     2.9      84
106           UD    0.48

107           KK  OUTLET
108           KM        COMBINE RT3 - RT5 - MCRY10 - MCRY11 AT OUTLET
109           KO       0       1                     21
110           HC       4

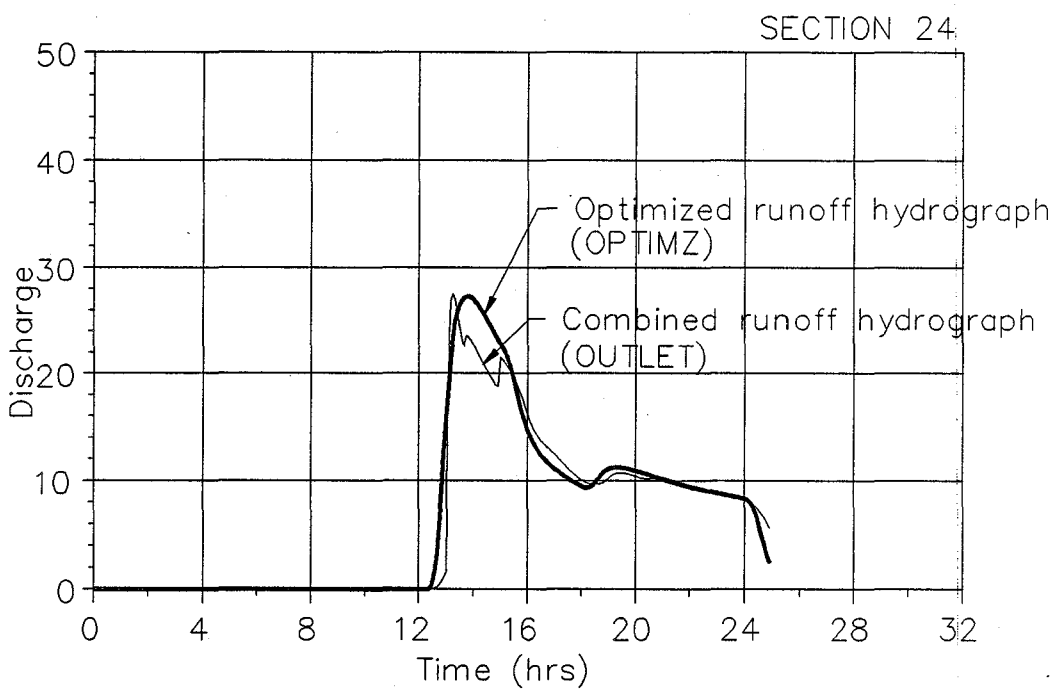
111           KK  OPTIMZ
112           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
113           KO       0       1                     21
114           BA    1.00
115           LS    2.77    83.0
116           UD    0.60
117           ZZ
```

SECT24
CORPORAT

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

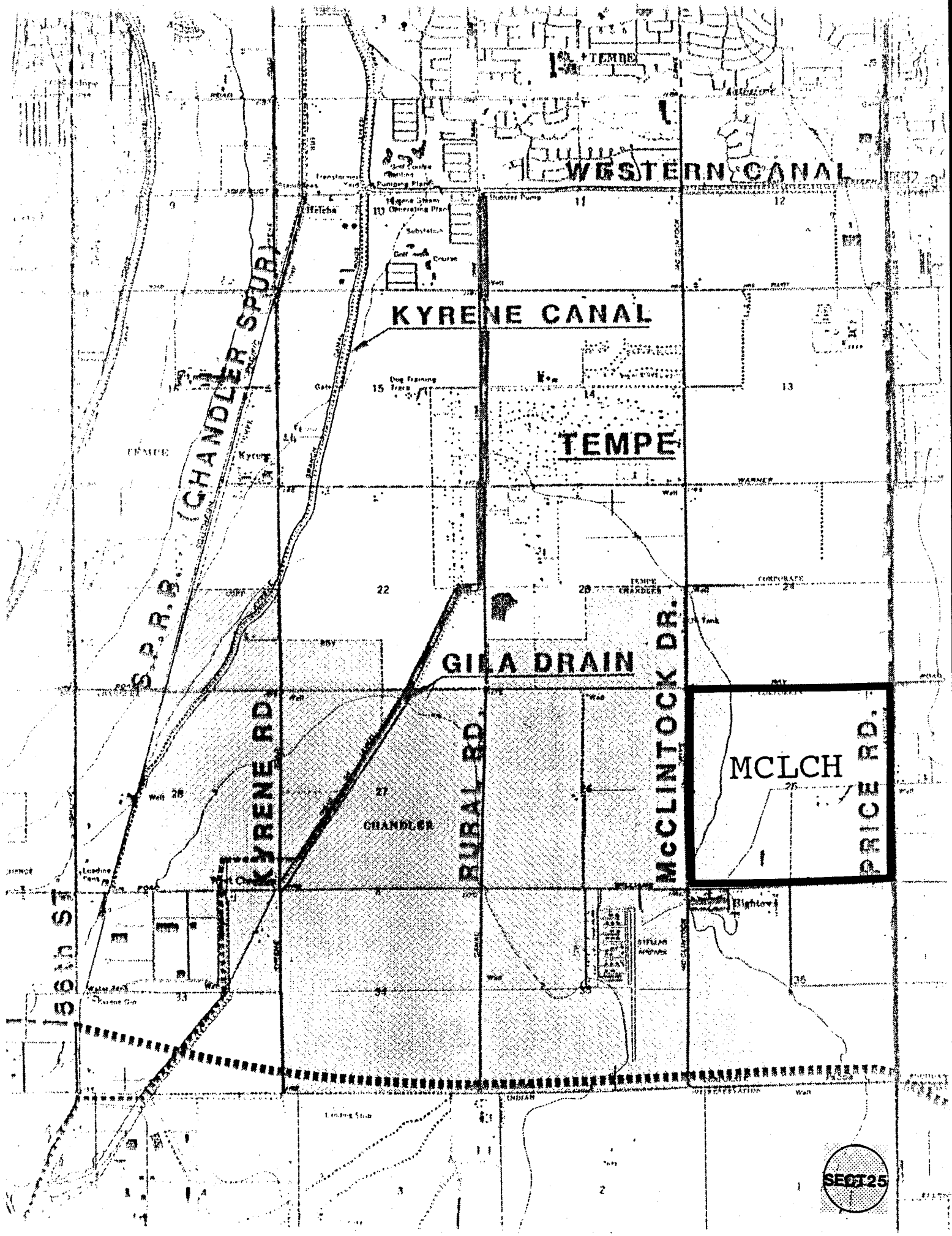
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	MCRAY1	3.	13.25	2.	1.	1.	.10		
HYDROGRAPH AT	MCRAY2	1.	15.17	1.	0.	0.	.10		
HYDROGRAPH AT	MCRAY3	1.	15.17	1.	0.	0.	.10		
3 COMBINED AT	COMB1	4.	14.33	3.	1.	1.	.30		
ROUTED TO	RT1	4.	15.50	3.	1.	1.	.30		
HYDROGRAPH AT	MCRAY4	9.	12.75	2.	1.	1.	.04		
ROUTED TO	RT2	9.	12.83	2.	1.	1.	.04		
HYDROGRAPH AT	MCRAY5	5.	13.00	2.	1.	1.	.07		
HYDROGRAPH AT	MCRAY6	2.	12.67	1.	0.	0.	.02		
HYDROGRAPH AT	MCRAY7	10.	12.75	3.	1.	1.	.10		
4 COMBINED AT	COMB2	25.	12.83	8.	3.	3.	.23		
2 COMBINED AT	COMB3	25.	12.83	10.	4.	4.	.53		
ROUTED TO	RT3	25.	13.25	10.	4.	4.	.53		
HYDROGRAPH AT	MCRAY8	2.	14.00	2.	1.	1.	.12		
ROUTED TO	RT4	2.	14.25	2.	1.	1.	.12		
HYDROGRAPH AT	MCRAY9	2.	14.25	2.	1.	1.	.13		
2 COMBINED AT	COMB4	5.	14.25	3.	1.	1.	.25		
ROUTED TO	RT5	5.	14.67	3.	1.	1.	.25		
HYDROGRAPH AT	MCRY10	2.	14.08	2.	1.	1.	.13		
HYDROGRAPH AT	MCRY11	2.	14.25	2.	1.	1.	.13		
4 COMBINED AT	OUTLET	28.	13.25	16.	6.	6.	1.03		
HYDROGRAPH AT	OPTIMZ	27.	13.75	17.	7.	6.	1.00		

SECT24
CORPORATE



Runoff Hydrographs for Drainage Subarea MCRAY

SECT24
CORPORATE


WESTERN CANAL
KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
MCLCH
CHANDLER
16th ST
SECT25

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 25  <MCLCH>
  2           ID        FLOWS TO MCCLINTOCK AND CHANDLER RD
  3           ID        AREA LOCATED IN SECTION 25 - WEST OF PRICE ROAD & SOUTH OF RAY RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  MCLCH1
 13           KM        CHANDLER - AGRICULTURAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.2500
 17           LS     1.5      83
 18           UD    0.63

 19           KK     RT1
 20           KM        ROUTE MCLCH1 HYDROGRAPH TO MCLCH2 CONFLUENCE
 21           RK    2600  .00200   0.016            TRAP     0.0    25.0

 22           KK  MCLCH2
 23           KM        CHANDLER - MULTI-FAMILTY
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR MULTI-FAMILY DEVELOPMENT SITE
 25           BA  0.0470
 26           LS     3.0      85
 27           UD    0.28

 28           KK     RT2
 29           KM        ROUTE MCLCH2 HYDROGRAPH TO MCLCH3 CONFLUENCE
 30           RK    2300  .00200   0.016            TRAP     0.0    25.0

 31           KK  MCLCH3
 32           KM        CHANDLER - OPEN FIELD
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR OPEN FIELD
 34           BA  0.2030
 35           LS     1.0      83
 36           UD    1.03

 37           KK   COMB1
 38           KM        COMBINE MCLCH3 - RT2 - RT1
 39           HC       3

 40           KK     RT3
 41           KM        ROUTE COMB1 HYDROGRAPH TO OUTLET
 42           RK    2600  .00110   0.016            TRAP     0.0    25.0
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SECT 25

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

  43          KK  MCLCH4
  44          KM        CHANDLER - AGRICULTURAL
  45          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  46          BA  0.1250
  47          LS     1.5      83
  48          UD    0.66

  49          KK     RT4
  50          KM        ROUTE MCLCH4 HYDROGRAPH TO MCLCH5 CONFLUENCE
  51          RK    1300  .00100   0.016            TRAP     0.0    25.0

  52          KK  MCLCH5
  53          KM        CHANDLER - RESIDENTIAL - 0.16
  54          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  55          BA   .1250
  56          LS    2.90      84
  57          UD    0.45

  58          KK   COMB2
  59          KM        COMBINE MCLCH5 - RT4
  60          HC       2

  61          KK     RT5
  62          KM        ROUTE COMB2 TO MCLCH6 CONFLUENCE
  63          RK    1600  .00100   0.016            TRAP     0.0    25.0

  64          KK  MCLCH6
  65          KM        CHANDLER - RESIDENTIAL - 0.16
  66          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  67          BA  0.1870
  68          LS    2.90      84
  69          UD    0.55

  70          KK   COMB3
  71          KM        COMBINE MCLCH6 - RT5
  72          HC       2

  73          KK     RT6
  74          KM        ROUTE COMB3 TO OUTLET
  75          RK    1000  .00100   0.016            TRAP     0.0    25.0

  76          KK  MCLCH7
  77          KM        CHANDLER - RESIDENTIAL - 0.16
  78          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  79          BA  0.0630
  80          LS    2.90      84
  81          UD    0.43

  82          KK  OUTLET
  83          KM        COMBINE MCLCH7 - RT6- RT3
  84          HC       3
  85          KO       0       1                    21
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SECT 25

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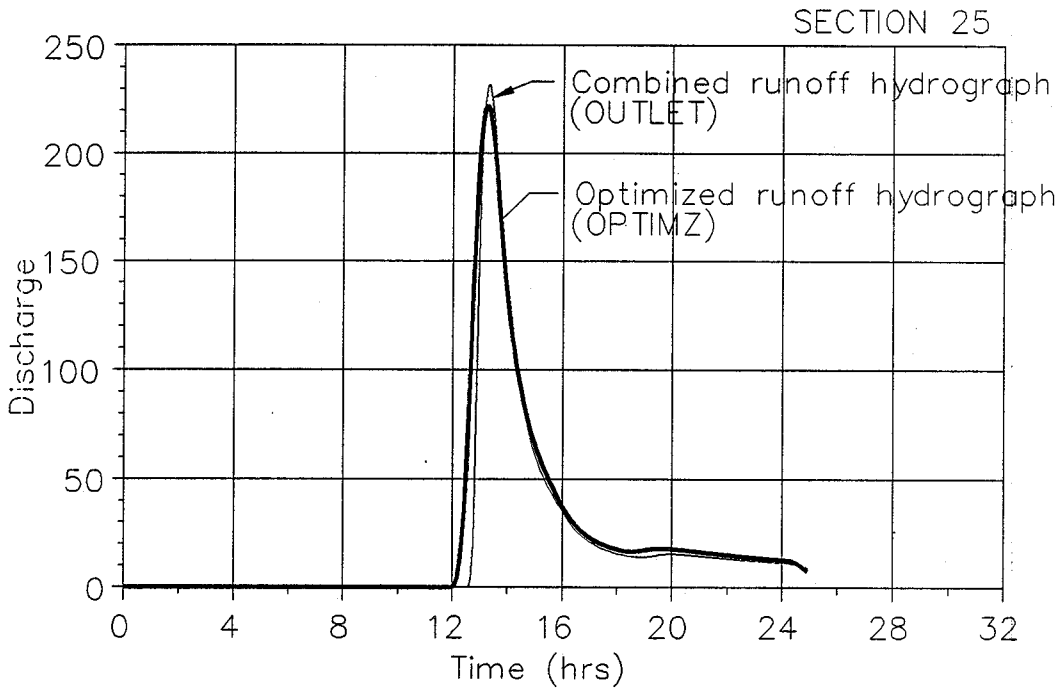
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  86          KK  OPTIMZ
  87          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
  88          KO       0       1                     21
  89          BA    1.00
  90          LS    1.81    84.0
  91          UD    0.91
  92          ZZ
```

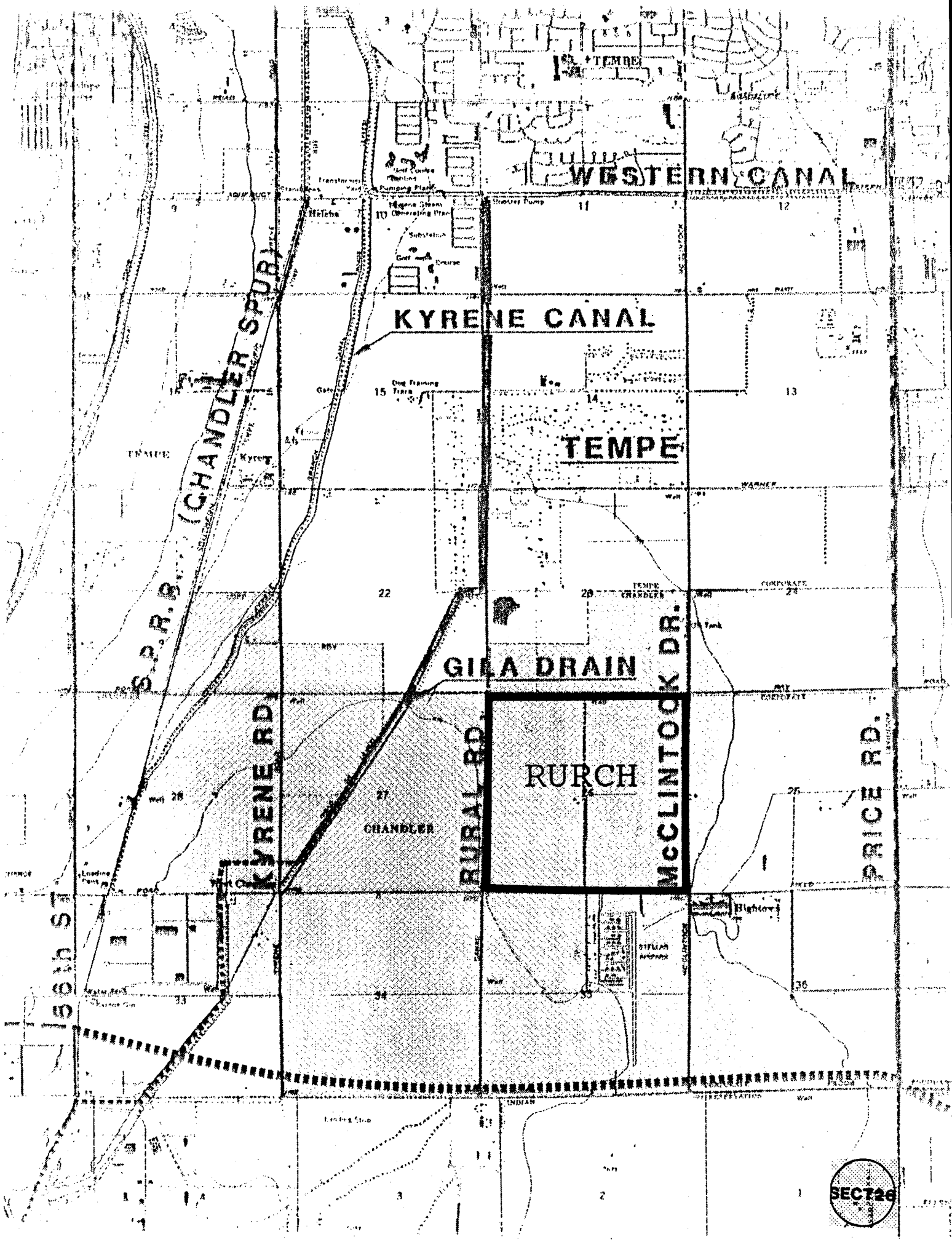
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

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	MCLCH1	99.	12.83	25.	7.	7.	.25		
ROUTED TO	RT1	99.	13.08	24.	7.	7.	.25		
HYDROGRAPH AT	MCLCH2	1.	14.58	0.	0.	0.	.05		
ROUTED TO	RT2	1.	15.17	0.	0.	0.	.05		
HYDROGRAPH AT	MCLCH3	86.	13.25	28.	8.	8.	.20		
3 COMBINED AT	COMB1	182.	13.08	53.	15.	15.	.50		
ROUTED TO	RT3	181.	13.25	52.	15.	15.	.50		
HYDROGRAPH AT	MCLCH4	48.	12.92	12.	4.	3.	.13		
ROUTED TO	RT4	48.	13.00	12.	4.	3.	.13		
HYDROGRAPH AT	MCLCH5	2.	14.25	2.	1.	1.	.13		
2 COMBINED AT	COMB2	48.	13.08	14.	4.	4.	.25		
ROUTED TO	RT5	48.	13.17	14.	4.	4.	.25		
HYDROGRAPH AT	MCLCH6	4.	14.42	2.	1.	1.	.19		
2 COMBINED AT	COMB3	50.	13.25	16.	5.	5.	.44		
ROUTED TO	RT6	50.	13.33	16.	5.	5.	.44		
HYDROGRAPH AT	MCLCH7	1.	14.17	1.	0.	0.	.06		
3 COMBINED AT	OUTLET	232.	13.33	69.	21.	20.	1.00		
HYDROGRAPH AT	OPTIMZ	222.	13.25	77.	24.	23.	1.00		

SEDI25



Runoff Hydrographs for Drainage Subarea MCLCH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KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
RURCH
CHANDLER
160th St
SECT26

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 26  <RURCH>
  2           ID        FLOWS TO RURAL AND CHANDLER RD
  3           ID        AREA LOCATED IN SECTION 26 - WEST OF PRICE ROAD & SOUTH OF RAY RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  RURCH1
 13           KM        CHANDLER - AGRICULTURAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.2500
 17           LS     1.5      83
 18           UD    0.84

 19           KK     RT1
 20           KM        ROUTE RURCH1 HYDROGRAPH TO RURCH3 CONFLUENCE
 21           RK    2600  .00200   0.016            TRAP     0.0    25.0

 22           KK  RURCH2
 23           KM        CHANDLER - COMMERCIAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL DEVELOPMENT SITE
 25           BA  0.0625
 26           LS     3.0      92
 27           UD    0.42

 28           KK     RT2
 29           KM        ROUTE RURCH2 HYDROGRAPH TO RURCH3 CONFLUENCE
 30           RK    1300  .00210   0.016            TRAP     0.0    25.0

 31           KK  RURCH3
 32           KM        CHANDLER - AGRICULTURAL
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL FIELD
 34           BA  0.1875
 35           LS     1.5      83
 36           UD    0.84

 37           KK   COMB1
 38           KM        COMBINE RURCH3 - RT2 - RT1
 39           HC       3

 40           KK     RT3
 41           KM        ROUTE COMB1 HYDROGRAPH TO OUTLET
 42           RK    2600  .00210   0.016            TRAP     0.0    25.0
```

SECT26

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

  43          KK  RURCH4
  44          KM        CHANDLER - RESIDENTIAL - 0.16
  45          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  46          BA  0.0625
  47          LS     2.9      84
  48          UD    0.45

  49          KK     RT4
  50          KM        ROUTE RURCH4 HYDROGRAPH TO RURCH5 CONFLUENCE
  51          RK    1300  .00200   0.016            TRAP     0.0    25.0

  52          KK  RURCH5
  53          KM        CHANDLER - AGRICULTURAL
  54          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL FIELD
  55          BA   .0625
  56          LS    1.50      83
  57          UD    0.42

  58          KK   COMB2
  59          KM        COMBINE RURCH5 - RT4
  60          HC       2

  61          KK     RT5
  62          KM        ROUTE COMB2 TO RURCH6 CONFLUENCE
  63          RK    1300  .00200   0.016            TRAP     0.0    25.0

  64          KK  RURCH6
  65          KM        CHANDLER - RESIDENTIAL - 0.16
  66          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL DEVELOPMENT SITE
  67          BA  0.1250
  68          LS    2.90      84
  69          UD    0.55

  70          KK   COMB3
  71          KM        COMBINE RURCH6 - RT5
  72          HC       2

  73          KK     RT6
  74          KM        ROUTE COMB3 TO OUTLET
  75          RK    2600  .00200   0.016            TRAP     0.0    25.0

  76          KK  RURCH7
  77          KM        CHANDLER - AGRICULTURAL
  78          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL FIELD
  79          BA  0.2500
  80          LS    1.50      83
  81          UD    1.22

  82          KK  OUTLET
  83          KM        COMBINE RURCH7 - RT6- RT3
  84          HC       3
  85          KO       0       1                    21
```

SECT26

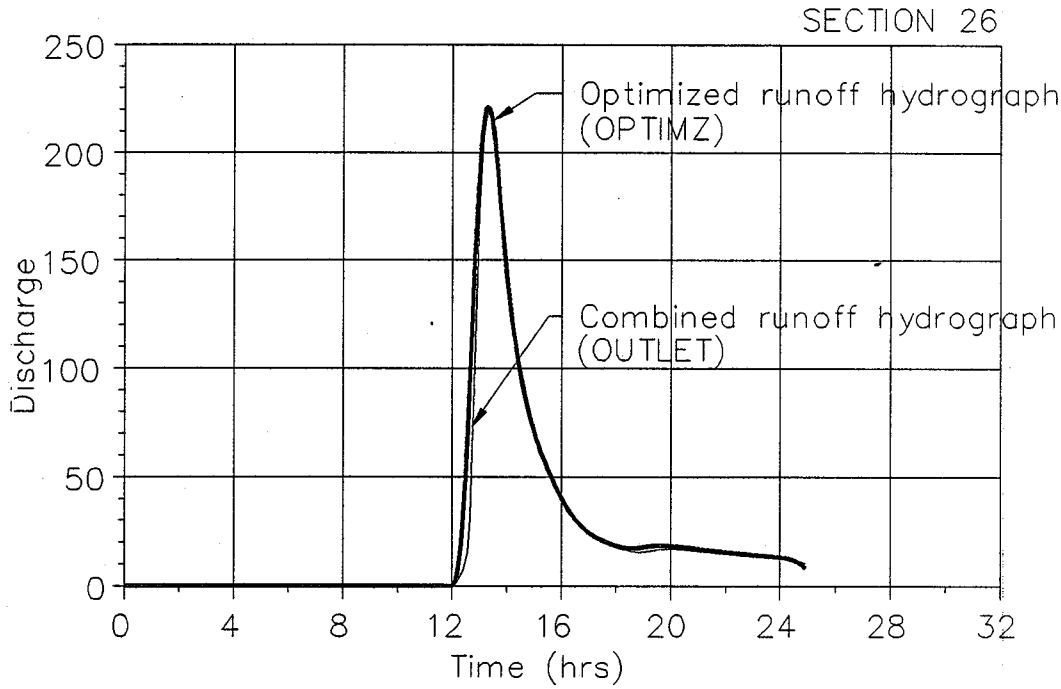
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  86          KK  OPTIMZ
  87          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
  88          KO       0       1                    21
  89          BA    1.00
  90          LS    1.82    85.0
  91          UD    0.96
  92          ZZ
```

SECT26

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

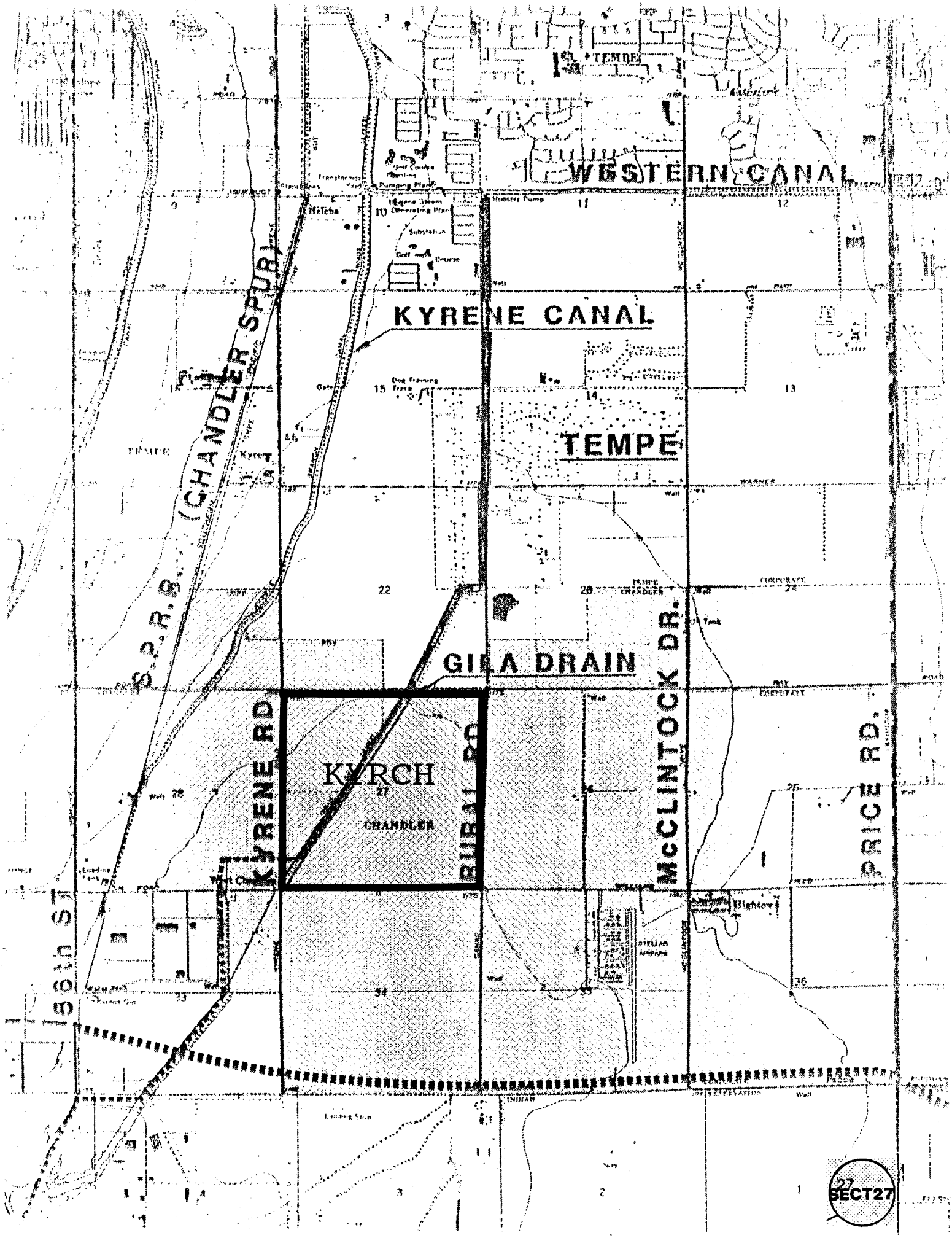
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	RURCH1	81.	13.08	24.	7.	7.	.25		
ROUTED TO	RT1	80.	13.25	24.	7.	7.	.25		
HYDROGRAPH AT	RURCH2	2.	14.67	1.	0.	0.	.06		
ROUTED TO	RT2	2.	14.92	1.	0.	0.	.06		
HYDROGRAPH AT	RURCH3	61.	13.08	18.	5.	5.	.19		
3 COMBINED AT	COMB1	139.	13.25	43.	13.	12.	.50		
ROUTED TO	RT3	139.	13.33	43.	13.	12.	.50		
HYDROGRAPH AT	RURCH4	1.	14.25	1.	0.	0.	.06		
ROUTED TO	RT4	1.	14.50	1.	0.	0.	.06		
HYDROGRAPH AT	RURCH5	32.	12.67	6.	2.	2.	.06		
2 COMBINED AT	COMB2	32.	12.67	7.	2.	2.	.13		
ROUTED TO	RT5	32.	12.75	7.	2.	2.	.13		
HYDROGRAPH AT	RURCH6	2.	14.42	2.	1.	1.	.13		
2 COMBINED AT	COMB3	32.	12.75	8.	3.	3.	.25		
ROUTED TO	RT6	31.	13.00	8.	3.	3.	.25		
HYDROGRAPH AT	RURCH7	61.	13.50	24.	7.	7.	.25		
3 COMBINED AT	OUTLET	219.	13.33	75.	23.	22.	1.00		
HYDROGRAPH AT	OPTIMZ	221.	13.33	79.	24.	23.	1.00		

SEC726



Runoff Hydrographs for Drainage Subarea RURCH

SECT26


WESTERN CANAL
KYRENE CANAL
TEMPE
(CHANDLER SPUR)
S.P.R.R.
GILA DRAIN
KYRENE RD.
KYRCH
RURAL RD.
McCLINTOCK DR.
PRICE RD.
156th ST
CHANDLER
SECT27

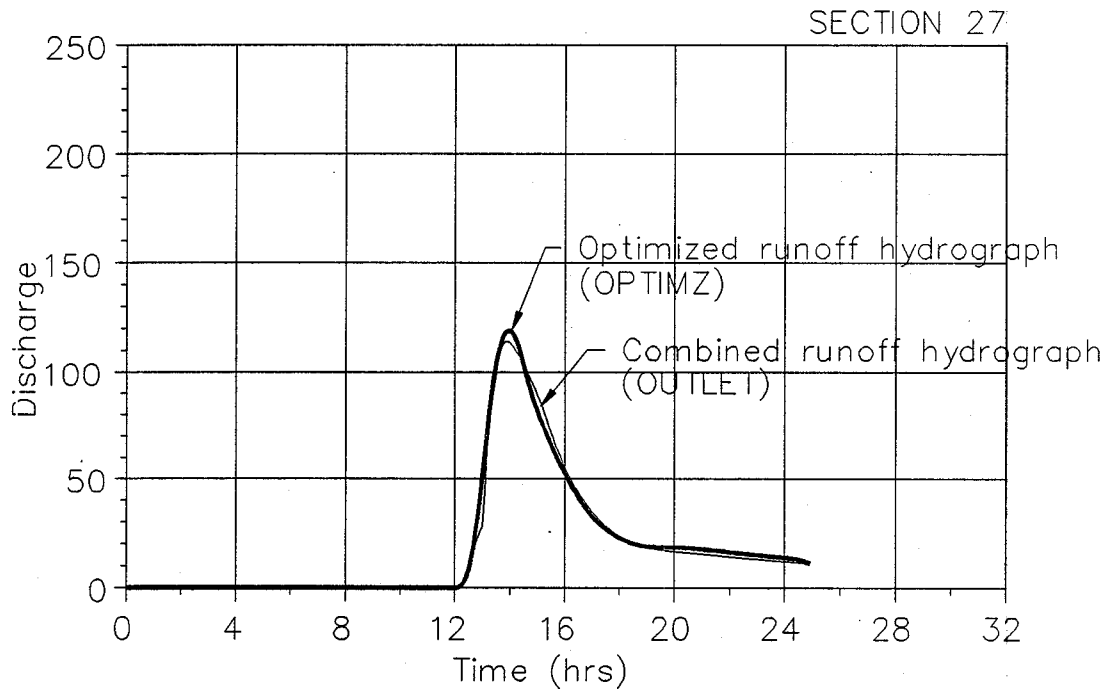
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 27  <KYRCH>
  2           ID        FLOWS TO KYRENE AND CHANDLER RD
  3           ID        AREA LOCATED IN SECTION 27 - WEST OF PRICE ROAD & SOUTH OF RAY RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  KYRCH1
 13           KM        CHANDLER - AGRICULTURAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.3400
 17           LS     1.5      83
 18           UD    1.81

 19           KK     RT1
 20           KM        ROUTE RURCH1 HYDROGRAPH TO RURCH3 CONFLUENCE
 21           RK    1500  .00100   0.016            TRAP     0.0    25.0

 22           KK  KYRCH2
 23           KM        CHANDLER - INDUSTRIAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL SITE
 25           BA  0.1290
 26           LS     3.0      88
 27           UD    0.38

 28           KK     RT2
 29           KM        ROUTE RURCH2 HYDROGRAPH TO RURCH3 CONFLUENCE
 30           RK     700  .00100   0.016            TRAP     0.0    25.0

 31           KK  KYRCH3
 32           KM        CHANDLER - PARK
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR PARK AREA
 34           BA  0.0260
 35           LS     3.0      63
 36           UD    0.41

 37           KK   COMB1
 38           KM        COMBINE KYRCH3 - RT2 - RT1
 39           HC       3

 40           KK     RT3
 41           KM        ROUTE COMB1 HYDROGRAPH TO KYRCH8 OUTLET
 42           RK    1300  .00100   0.016            TRAP     0.0    25.0
```

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

  43          KK  KYRCH7
  44          KM        CHANDLER - RESIDENTIAL - 0.16
  45          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  46          BA  0.1180
  47          LS    2.9      84
  48          UD   0.72

  49          KK     RT4
  50          KM        ROUTE KYRCH7 HYDROGRAPH TO KYRCH8 CONFLUENCE
  51          RK   1000  .00100   0.016            TRAP     0.0    25.0

  52          KK  KYRCH8
  53          KM        CHANDLER - AGRICULTURAL
  54          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL FIELD
  55          BA   .0560
  56          LS   1.50      83
  57          UD   0.83

  58          KK   COMB2
  59          KM        COMBINE KYRCH8 - RT4
  60          HC       3

  61          KK     RT5
  62          KM        ROUTE COMB2 TO KYRCH9 CONFLUENCE
  63          RK   1300  .00100   0.016            TRAP     0.0    25.0

  64          KK  KYRCH4
  65          KM        CHANDLER - AGRICULTURAL
  66          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  67          BA  0.0750
  68          LS   1.50      83
  69          UD   0.80

  70          KK     RT6
  71          KM        ROUTE KYRCH4 TO KYRCH5 CONFLUENCE
  72          RK   1800  .00100   0.016            TRAP     0.0    25.0

  73          KK  KYRCH5
  74          KM        CHANDLER - AGRICULTURAL
  75          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  76          BA  0.1110
  77          LS   1.50      83
  78          UD   0.93

  79          KK   COMB3
  80          KM        COMBINE KYRCH5 - RT6
  81          HC       2

  82          KK     RT7
  83          KM        ROUTE COMB3 TO KYRCH6 CONFLUENCE
  84          RK   2600  .00100   0.016            TRAP     0.0    25.0
```

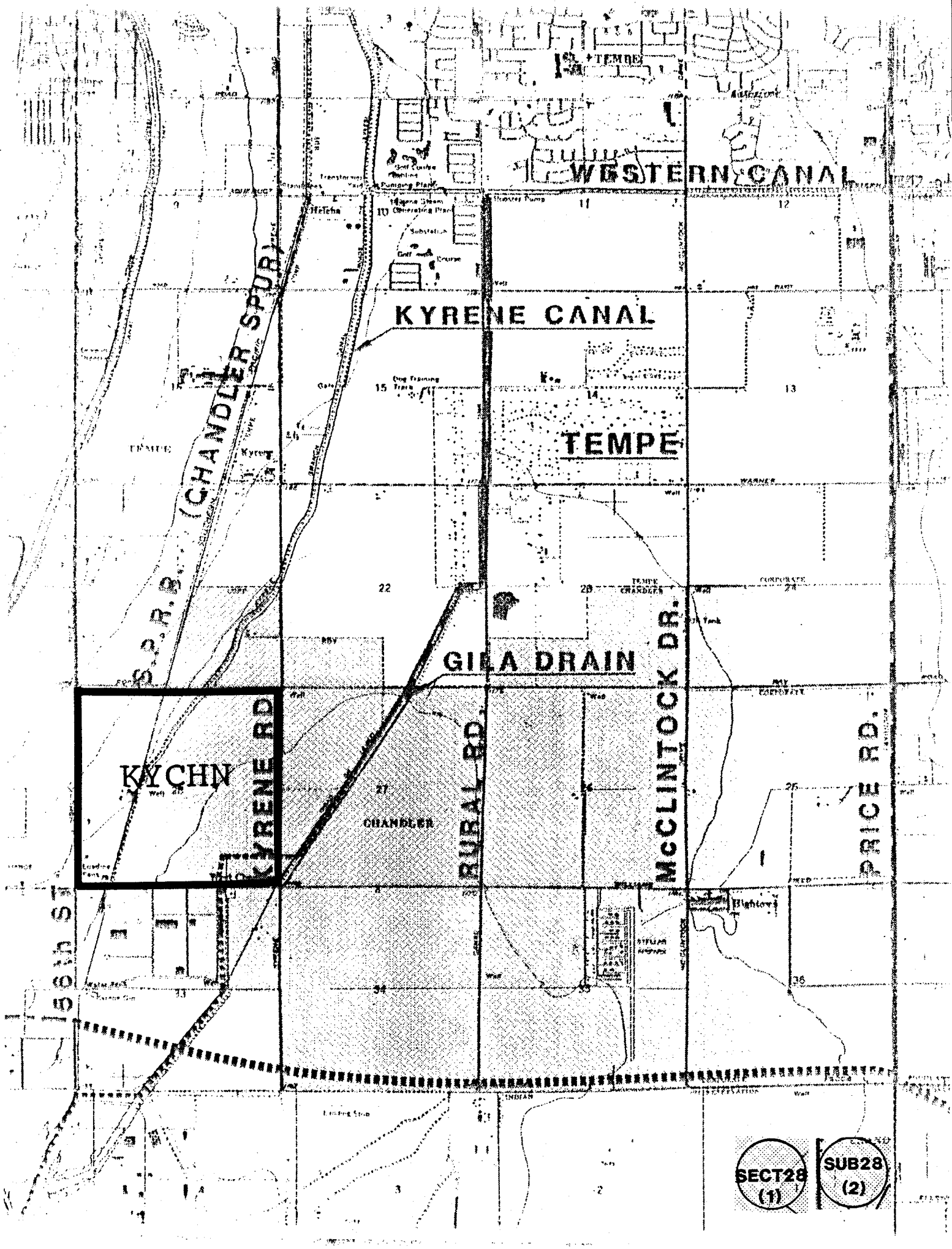
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 85           KK  KYRCH6
 86           KM        CHANDLER - RESIDENTIAL - 0.16
 87           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 88           BA  0.1150
 89           LS    2.90      84
 90           UD    0.80

 91           KK   COMB4
 92           KM        COMBINE KYRCH6 - RT7
 93           HC       2

 94           KK     RT8
 95           KM        ROUTE COMB4 TO OUTLET
 96           RK     800  .00100   0.016            TRAP     0.0    25.0

 97           KK  KYRCH9
 98           KM        CHANDLER - AGRICULTURAL
 99           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
100           BA  0.0300
101           LS    1.50      83
102           UD    0.61

103           KK  OUTLET
104           KM        COMBINE KYRCH9 - RT8 - RT5
105           HC       3
106           KO       0       1                    21

107           KK  OPTIMZ
108           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
109           KO       0       1                    21
110           BA    1.00
111           LS    2.18    88.0
112           UD    1.38
113           ZZ
```

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	KYRCH1	61.	14.17	32.	10.	9.	.34		
ROUTED TO	RT1	61.	14.33	32.	10.	9.	.34		
HYDROGRAPH AT	KYRCH2	2.	14.75	2.	1.	1.	.13		
ROUTED TO	RT2	2.	14.92	2.	1.	1.	.13		
HYDROGRAPH AT	KYRCH3	0.	14.92	0.	0.	0.	.03		
3 COMBINED AT	COMB1	63.	14.33	33.	10.	10.	.50		
ROUTED TO	RT3	63.	14.50	33.	10.	10.	.50		
HYDROGRAPH AT	KYRCH7	2.	14.75	1.	1.	1.	.12		
ROUTED TO	RT4	2.	14.92	1.	1.	1.	.12		
HYDROGRAPH AT	KYRCH8	18.	13.08	5.	2.	2.	.06		
3 COMBINED AT	COMB2	71.	14.42	39.	12.	12.	.67		
ROUTED TO	RT5	71.	14.50	39.	12.	12.	.67		
HYDROGRAPH AT	KYRCH4	25.	13.08	7.	2.	2.	.08		
ROUTED TO	RT6	25.	13.25	7.	2.	2.	.08		
HYDROGRAPH AT	KYRCH5	33.	13.17	11.	3.	3.	.11		
2 COMBINED AT	COMB3	58.	13.25	18.	5.	5.	.19		
ROUTED TO	RT7	58.	13.50	18.	5.	5.	.19		
HYDROGRAPH AT	KYRCH6	2.	14.92	1.	1.	1.	.12		
2 COMBINED AT	COMB4	59.	13.50	19.	6.	6.	.30		
ROUTED TO	RT8	59.	13.58	19.	6.	6.	.30		
HYDROGRAPH AT	KYRCH9	12.	12.83	3.	1.	1.	.03		
3 COMBINED AT	OUTLET	114.	13.83	60.	19.	18.	1.00		
HYDROGRAPH AT	OPTIMZ	119.	13.92	60.	19.	19.	1.00		



Runoff Hydrographs for Drainage Subarea KYRCH


WESTERN CANAL
KYRENE CANAL
TEMPE
(CHANDLER SPUR)
S.P.R.R.
GILA DRAIN
KYCHN
KYRENE RD
RURAL RD.
McCLINTOCK DR.
PRICE RD.
156th ST
CHANDLER
SECT28 (1)
SUB28 (2)

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 28  <KYCHN>
  2           ID        FLOWS TO KYRENE AND CHANDLER RDS
  3           ID        AREA LOCATED IN SECTION 28 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  KYCHN1
 13           KM        CHANDLER - AGRICULTRUAL
 14           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1012
 17           LS     1.5      83
 18           UD    0.45

 19           KK     RT1
 20           KM        ROUTE KYCHN1 RUNOFF HYDROGRAPH TO KYCHN2 CONFLUENCE
 21           RK    1400  0.0065   0.016            TRAP     0.0    25.0

 22           KK  KYCHN2
 23           KM        CHANDLER - RESIDENTIAL - 0.16
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 25           BA   .1632
 26           LS     2.9      84
 27           UD    0.36

 28           KK   COMB1
 29           KM        COMBINE RT1 - KYCHN2
 30           HC       2

 31           KK     RT2
 32           KM        ROUTE COMB1 TO KYCHN3 CONFLUENCE
 33           RK    2600  0.0065   0.016            TRAP     0.0    25.0

 34           KK  KYCHN3
 35           KM        CHANDLER - INDUSTRIAL
 36           KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
 37           BA   .2611
 38           LS     3.0      90
 39           UD    0.51

 40           KK   COMB2
 41           HC       2
```

SECT28 (1) SUB28 (2)

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

  42          KK  KYCHN4
  43          KM        CHANDLER - AGRICULTURAL
  44          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  45          BA   .0444
  46          LS     1.5      83
  47          UD    0.33

  48          KK     RT3
  49          KM        ROUTE KYCHN4 TO OUTLT1
  50          RK    3200  0.0065   0.016            TRAP     0.0    25.0

  51          KK  KYCHN5
  52          KM        CHANDLER - INDUSTRIAL
  53          KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
  54          BA   .1236
  55          LS     3.0      88
  56          UD    0.41

  57          KK     RT4
  58          KM        ROUTE KYCHN5 TO OUTLT1
  59          RK    4400  0.0065   0.016            TRAP     0.0    25.0

  60          KK  OUTLT1
  61          HC       3
  62          KO       0       1                     21

  63          KK  OPTIM1
  64          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT1
  65          KO       0       1                     21
  66          BA    0.69
  67          LS    2.51    85.0
  68          UD    0.35

  69          KK   KYRR6
  70          KM        CHANDLER - AGRICULTURAL
  71          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  72          BA   .1854
  73          LS     1.5      83
  74          UD    0.54

  75          KK     RT5
  76          KM        ROUTE KYRR6 TO OUTLT2
  77          RK    2800  0.0065   0.016            TRAP     0.0    25.0

  78          KK   KYRR7
  79          KM        CHANDLER - INDUSTRIAL
  80          KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
  81          BA   .1162
  82          LS     3.0      88
  83          UD    0.44
```

SECT28 (1) SUB28 (2)

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

  84          KK  OUTLT2
  85          HC       2
  86          KO       0       1                       21

  87          KK  OPTIM2
  88          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT2
  89          KO       0       1                       21
  90          BA    0.30
  91          LS    1.97    85.0
  92          UD    0.58
  93          ZZ
```

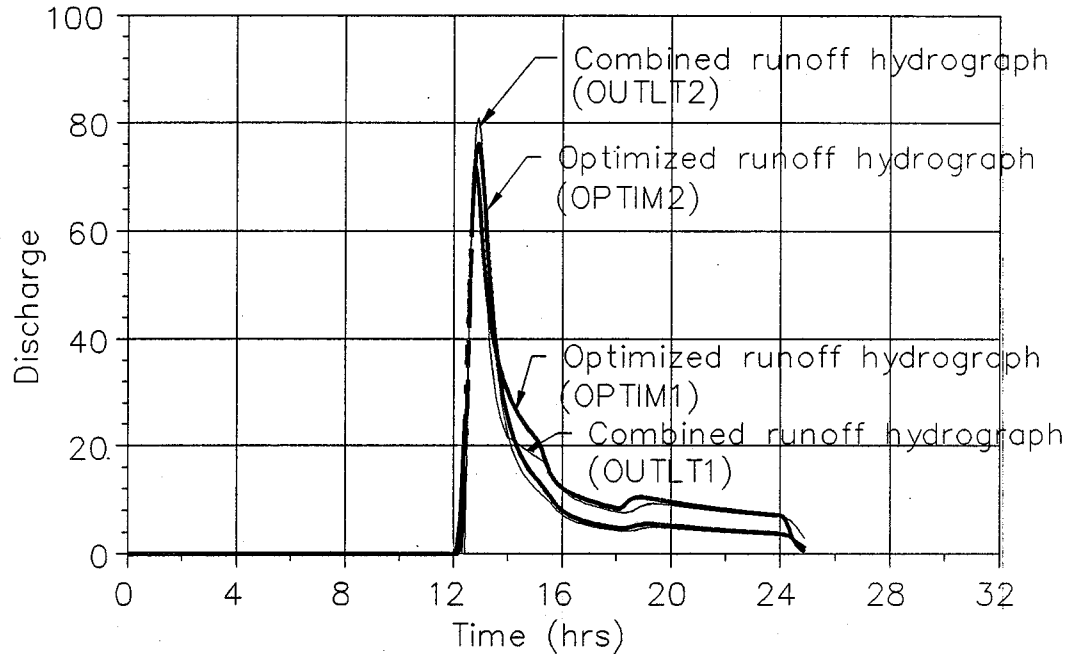
SECT28 (1) SUB28 (2)

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	KYCHN1	50.	12.67	10.	3.	3.	.10		
ROUTED TO	RT1	49.	12.75	10.	3.	3.	.10		
HYDROGRAPH AT	KYCHN2	3.	14.08	2.	1.	1.	.16		
2 COMBINED AT	COMB1	50.	12.75	12.	4.	4.	.26		
ROUTED TO	RT2	49.	12.83	12.	4.	4.	.26		
HYDROGRAPH AT	KYCHN3	5.	15.00	4.	2.	1.	.26		
2 COMBINED AT	COMB2	49.	12.83	15.	5.	5.	.53		
HYDROGRAPH AT	KYCHN4	26.	12.50	4.	1.	1.	.04		
ROUTED TO	RT3	25.	12.75	4.	1.	1.	.04		
HYDROGRAPH AT	KYCHN5	2.	14.83	2.	1.	1.	.12		
ROUTED TO	RT4	2.	15.33	2.	1.	1.	.12		
3 COMBINED AT	OUTLT1	72.	12.83	21.	7.	7.	.69		
HYDROGRAPH AT	OPTIM1	71.	12.83	23.	8.	8.	.69		
HYDROGRAPH AT	KYRR6	81.	12.75	18.	5.	5.	.19		
ROUTED TO	RT5	81.	12.92	18.	5.	5.	.19		
HYDROGRAPH AT	KYRR7	2.	14.92	1.	1.	1.	.12		
2 COMBINED AT	OUTLT2	81.	12.92	19.	6.	6.	.30		
HYDROGRAPH AT	OPTIM2	76.	12.92	21.	6.	6.	.30		

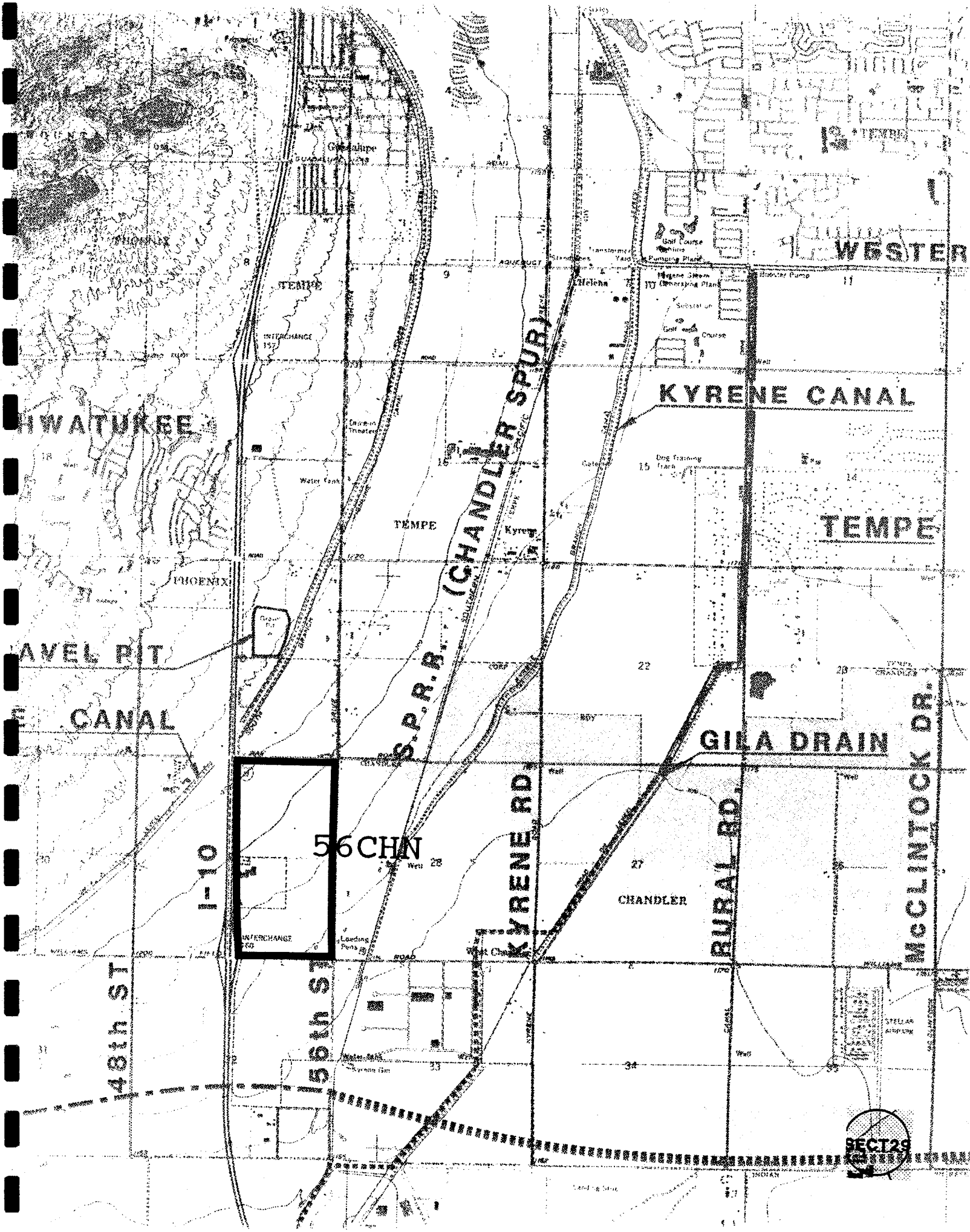
SECT28 (1) SUB28 (2)

SECTION 28



Runoff Hydrographs for Drainage Subarea KYCHN

SECT28 (1) SUB28 (2)


WESTER
KYRENE CANAL
HWATUKEE
TEMPE
TEMPE
AVEL PIT
E CANAL
S.P.R.R. (CHANDLER SPUR)
GILA DRAIN
56CHN
I-10
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
CHANDLER
48th ST
56th ST
SECT29

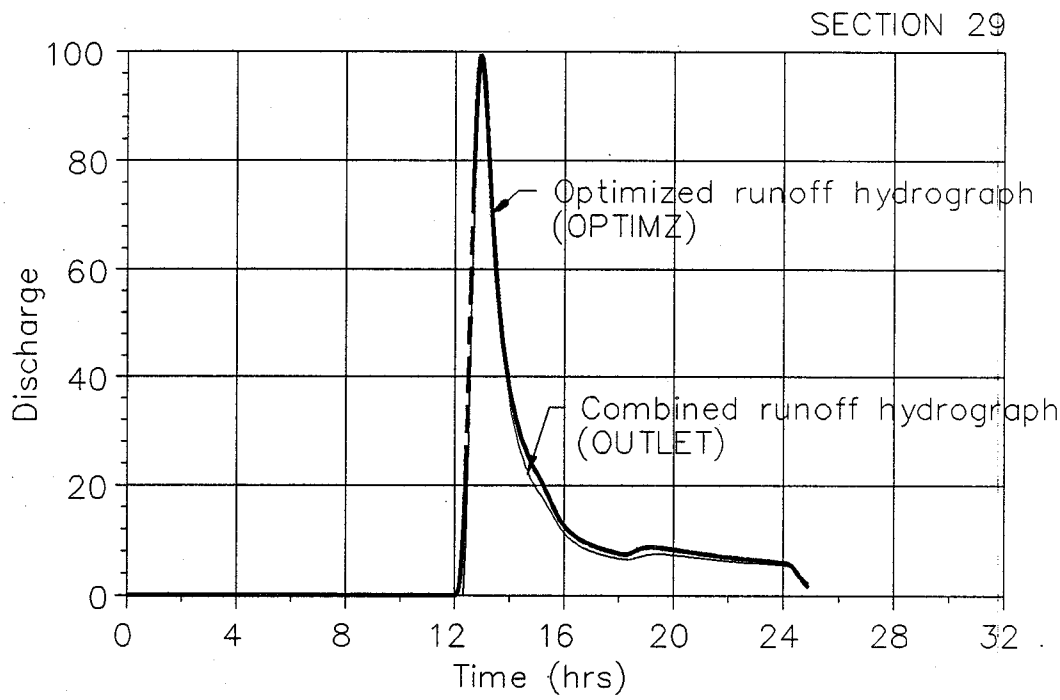
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 29  <56CHN>
  2           ID        FLOWS TO 56TH AND CHANDLER RDS
  3           ID        AREA LOCATED IN SECTION 29 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT      5                    300
 10           IN     30
 11           IO      5       0       0

 12           KK  56CHN1
 13           KM        CHANDLER - AGRICULTRUAL
 14           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 15           PH      1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA   0.25
 17           LS    1.5      83
 18           UD   0.64

 19           KK     RT1
 20           KM        ROUTE 56CHN1 RUNOFF HYDROGRAPH TO 56CHN2 CONFLUENCE
 21           RK   2600  0.0063   0.016            TRAP     0.0    25.0

 22           KK  56CHN2
 23           KM        CHANDLER - INDUSTRIAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
 25           BA  .1250
 26           LS    3.0      88
 27           UD   0.41

 28           KK     RT2
 29           KM        ROUTE 56CHN2 TO OUTLET
 30           RK   1300  0.0063   0.016            TRAP     0.0    25.0

 31           KK  56CHN3
 32           KM        CHANDLER - INDUSTRIAL
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
 34           BA  .1230
 35           LS    3.0      88
 36           UD   0.41

 37           KK  OUTLET
 38           KM        COMBINE RT1 - RT2 - 56CHN3
 39           HC      3
 40           KO      0       1                    21

 41           KK  OPTIMZ
 42           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
 43           KO      0       1                    21
 44           BA   0.50
 45           LS   2.12    85.0
 46           UD   0.58
 47           ZZ
```

SECT29

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

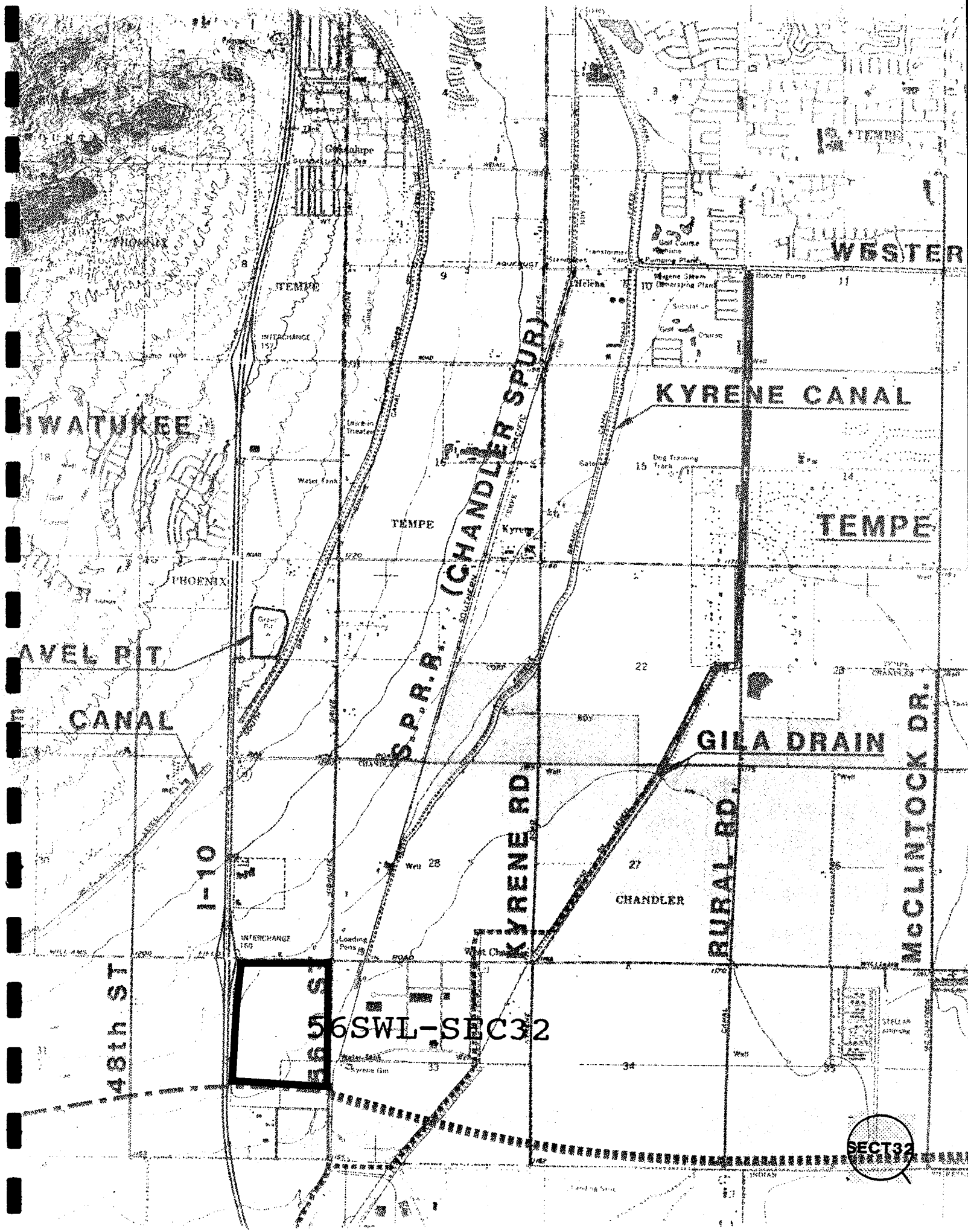
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	56CHN1	98.	12.92	25.	7.	7.	.25		
ROUTED TO	RT1	98.	13.00	24.	7.	7.	.25		
HYDROGRAPH AT	56CHN2	2.	14.83	2.	1.	1.	.13		
ROUTED TO	RT2	2.	15.00	2.	1.	1.	.13		
HYDROGRAPH AT	56CHN3	2.	14.83	2.	1.	1.	.12		
3 COMBINED AT	OUTLET	98.	13.00	27.	8.	8.	.50		
HYDROGRAPH AT	OPTIMZ	99.	12.92	29.	9.	9.	.50		

SECT29



Runoff Hydrographs for Drainage Subarea 56CHN

SECT29


WESTER
KYRENE CANAL
TEMPE
(CHANDLER SPUR)
S.P.R.R.
GILA DRAIN
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
I-10
48th ST
CHANDLER
PHOENIX
56SWL-SEC32
SECT32

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 32  <56SWL>
  2           ID        FLOWS TO 56TH AND SOUTHWEST LOOP
  3           ID        AREA LOCATED IN SECTION 32 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT      5                    300
 10           IN     30
 11           IO      5       0       0

 12           KK   56SWL
 13           KM        CHANDLER - AGRICULTRUAL
 14           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 15           PH      1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.3284
 17           LS    1.5      83
 18           UD   0.60
 19           KO      0       1                    21
 20           ZZ
```

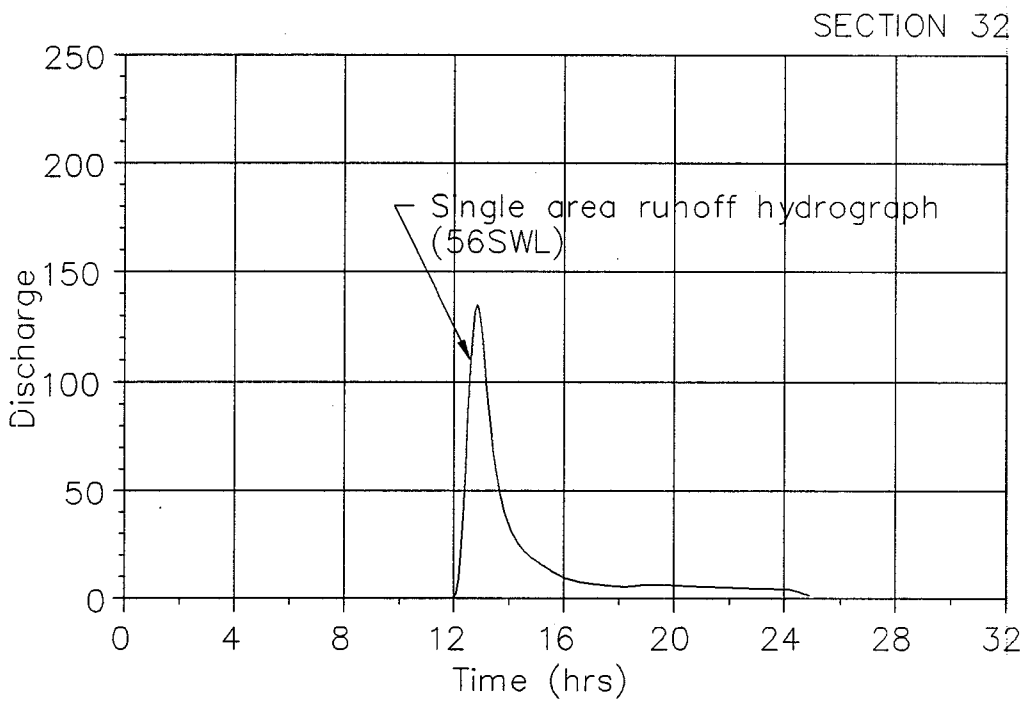
SECT32

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	56SWL	135.	12.83	32.	10.	9.	.33		

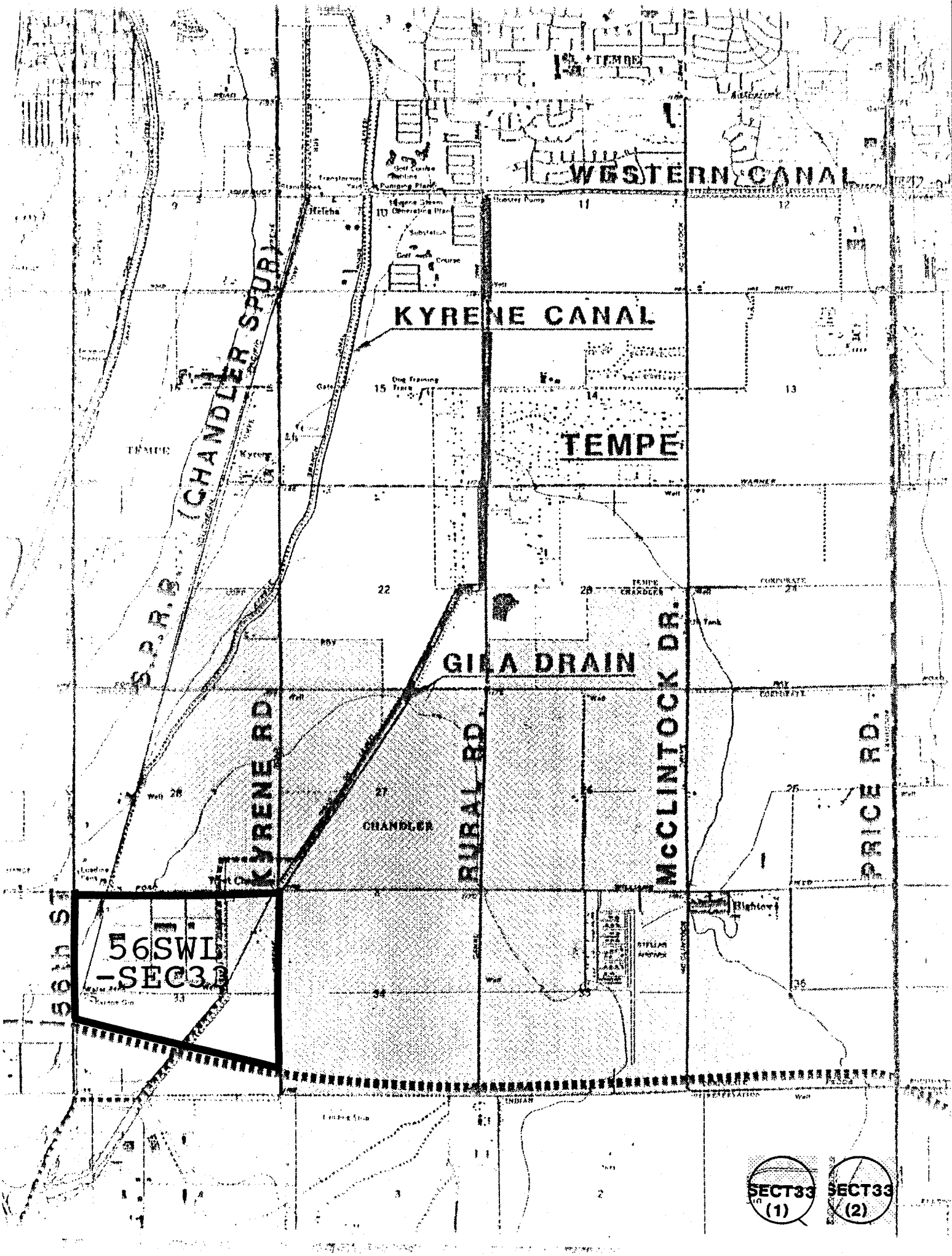
*** NORMAL END OF HEC-1 ***
NORMAL END OF HEC-1

SECT32



Runoff Hydrograph for Drainage Subarea 56SWL

SECT32


WESTERN CANAL
KYRENE CANAL
TEMPE
S.P.R.R. (CHANDLER SPUR)
GILA DRAIN
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
56SWL
-SEC33
SECT33 (1)
SECT33 (2)

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 33  <56SWL>
  2           ID        FLOWS TO 56TH STREET AND SOUTHWEST LOOP
  3           ID        AREA LOCATED IN SECTION 33 - WEST OF PRICE ROAD & SOUTH OF WESTERN CANAL
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK   56RR1
 13           KM        CHANDLER - AGRICULTRUAL
 14           KM        COMPUTE RUNOFF FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.0396
 17           LS     1.5      83
 18           UD    0.44

 19           KK  KYSWL4
 20           KM        CHANDLER - INDUSTRIAL
 21           KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
 22           BA   .1854
 23           LS     3.0      90
 24           UD    0.49

 25           KK  KYSWL3
 26           KM        CHANDLER - INDUSTRIAL
 27           KM        COMPUTE RUNOFF HYDROGRAPH FOR INDUSTRIAL AREA
 28           BA   .1426
 29           LS     3.0      90
 30           UD    0.40

 31           KK  KYSWL2
 32           KM        CHANDLER - AGRICULTURAL
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 34           BA   .1588
 35           LS     1.5      86
 36           UD    0.30

 37           KK  OUTLT1
 38           KM        COMBINE 56RR1 - KYSWL4 - KYSWL3 - KYSWL2
 39           HC       4
 40           KO       0       1                   21

 41           KK  OPTIM1
 42           KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT1
 43           KO       0       1                   21
 44           BA    0.53
 45           LS    2.22    82.0
 46           UD    0.18
```

SECT33 (1) SECT33 (2)

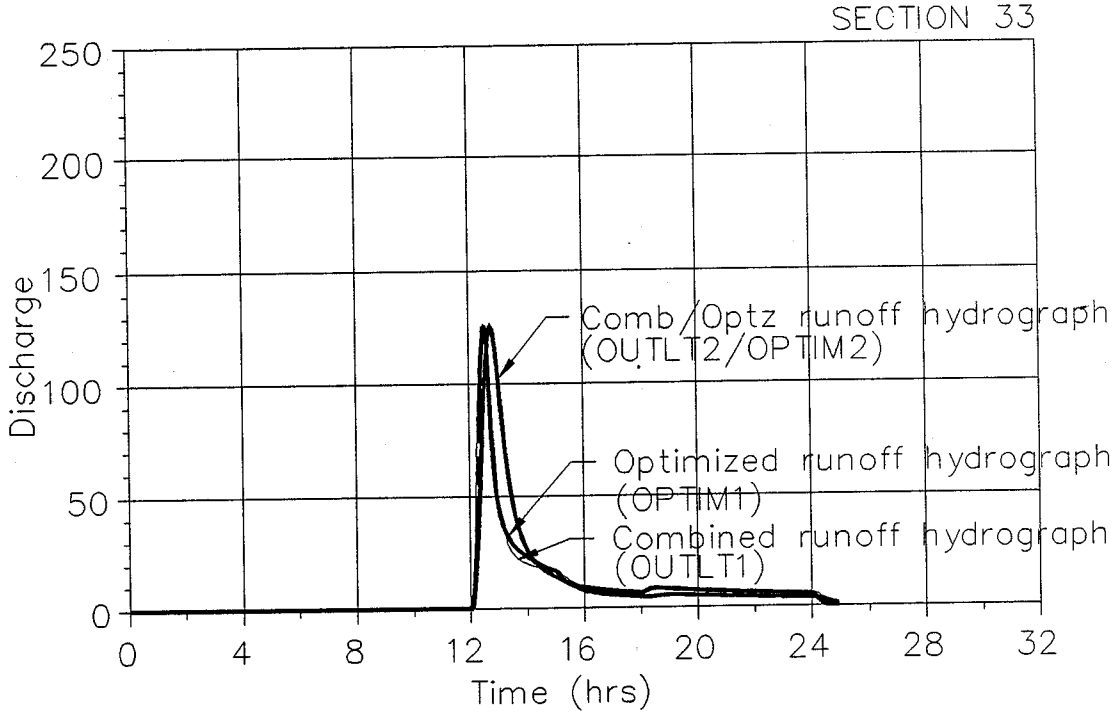
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  47          KK  KYSWL5
  48          KM        CHANDLER - AGRICULTURAL
  49          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  50          BA   .1236
  51          LS     1.5      86
  52          UD    0.56

  53          KK     RT1
  54          KM        ROUTE KYSWL5 TO OUTLT2
  55          RK    2000  0.0050   0.016            TRAP     0.0    25.0

  56          KK  KYSWL6
  57          KM        CHANDLER - AGRICULTURAL
  58          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  59          BA   .1334
  60          LS     1.5      86
  61          UD    0.43

  62          KK  OUTLT2
  63          HC       2
  64          KO       0       1                     21

  65          KK  OPTIM2
  66          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLT2
  67          KO       0       1                     21
  68          BA    0.26
  69          LS    1.53    86.0
  70          UD    0.54
  71          ZZ
```

SECT33 (1) SECT33 (2)

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

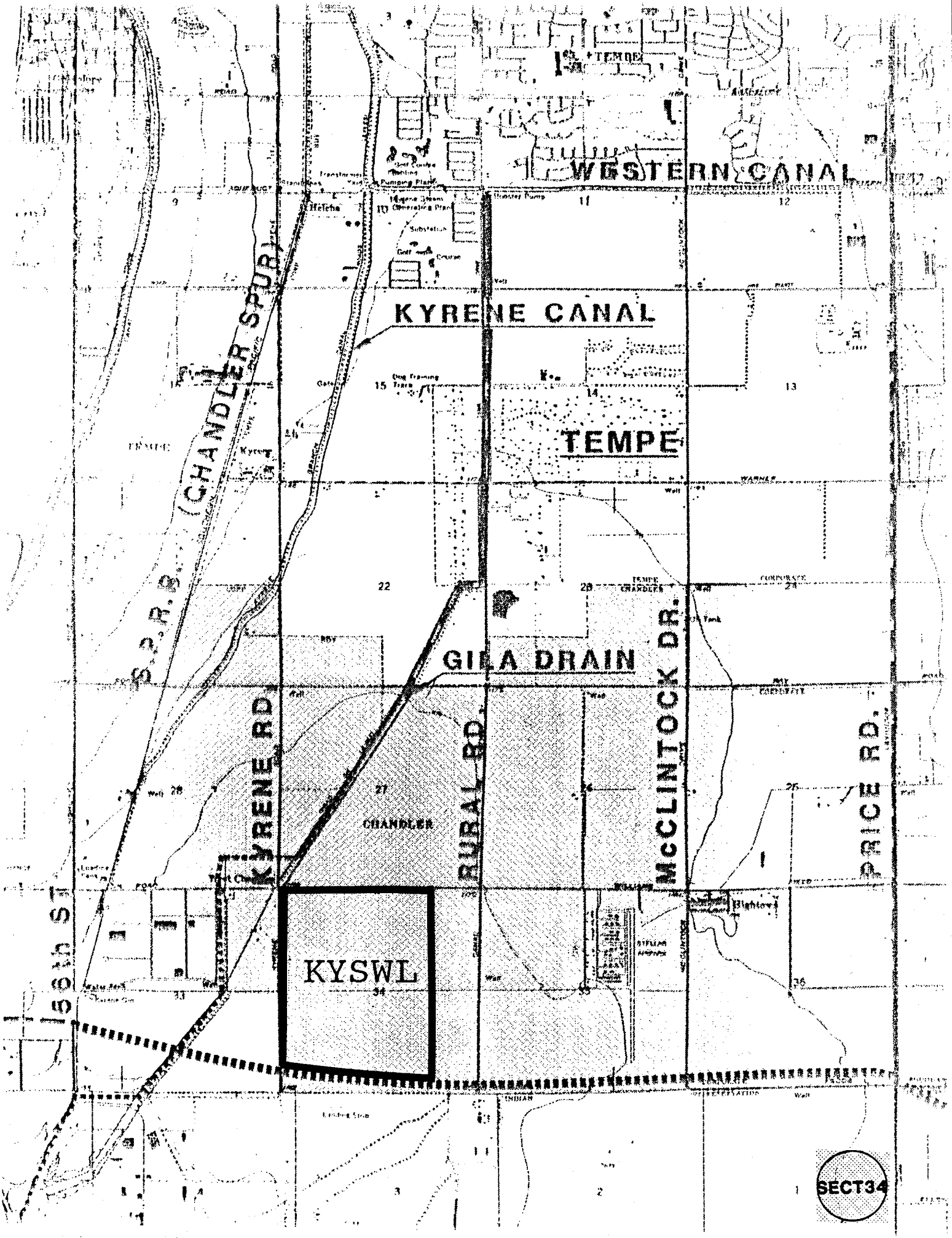
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	56RR1	20.	12.67	4.	1.	1.	.04		
HYDROGRAPH AT	KYSWL4	4.	14.92	3.	1.	1.	.19		
HYDROGRAPH AT	KYSWL3	3.	14.75	2.	1.	1.	.14		
HYDROGRAPH AT	KYSWL2	110.	12.50	18.	5.	5.	.16		
4 COMBINED AT	OUTLT1	127.	12.50	25.	8.	8.	.53		
HYDROGRAPH AT	OPTIM1	126.	12.50	24.	8.	7.	.53		
HYDROGRAPH AT	KYSWL5	60.	12.75	14.	4.	4.	.12		
ROUTED TO	RT1	60.	12.92	14.	4.	4.	.12		
HYDROGRAPH AT	KYSWL6	76.	12.67	15.	4.	4.	.13		
2 COMBINED AT	OUTLT2	127.	12.75	28.	8.	8.	.26		
HYDROGRAPH AT	OPTIM2	126.	12.75	28.	8.	8.	.26		

SECT33 (1) SECT33 (2)



Runoff Hydrographs for Drainage Subarea 56SWL (Sect. 33)

SECT33 (1) SECT33 (2)


WESTERN CANAL
KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
CHANDLER
KYSWL
SECT34

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 34  <KYSWL>
  2           ID        FLOWS TO KYRENE AND SOUTHWEST LOOP
  3           ID        AREA LOCATED IN SECTION 34 - WEST OF PRICE ROAD & SOUTH OF CHANDLER RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  KYSWL1
 13           KM        CHANDLER - AGRICULTURAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1162
 17           LS     1.5      83
 18           UD    1.23

 19           KK     RT1
 20           KM        ROUTE KYSWL1 HYDROGRAPH TO KYSWL3 CONFLUENCE
 21           RK    2600  .00100   0.016            TRAP     0.0    25.0

 22           KK  KYSWL2
 23           KM        CHANDLER - OPEN FIELD
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR OPEN FIELD
 25           BA  0.1047
 26           LS     1.0      83
 27           UD    0.67

 28           KK     RT2
 29           KM        ROUTE KYSWL2 HYDROGRAPH TO KYSWL3 CONFLUENCE
 30           RK    1200  .00100   0.016            TRAP     0.0    25.0

 31           KK  KYSWL3
 32           KM        CHANDLER - RESIDENTIAL - 0.16
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 34           BA  0.1592
 35           LS     2.9      84
 36           UD    0.80

 37           KK   COMB1
 38           HC       3

 39           KK     RT2
 40           KM        ROUTE COMB1 HYDROGRAPH TO OUTLET
 41           RK    2000  .00100   0.016            TRAP     0.0    25.0
```

SECT34

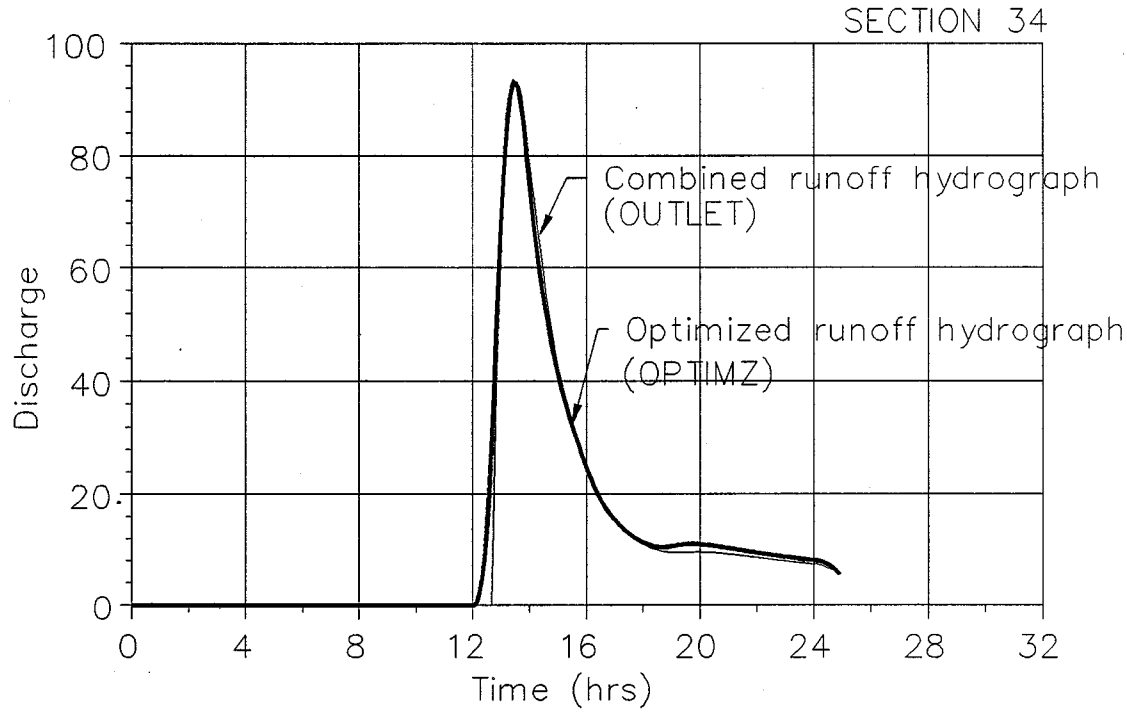
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  42          KK  KYSWL4
  43          KM        CHANDLER - AGRICULTURAL - 0.16
  44          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  45          BA   .0918
  46          LS    1.50      83
  47          UD    1.03

  48          KK     RT3
  49          KM        ROUTE KYSWL4 TO OUTLET
  50          RK    2600  .00100   0.016            TRAP     0.0    25.0

  51          KK  KYSWL5
  52          KM        CHANDLER - RESIDENTIAL - 0.16
  53          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  54          BA  0.1937
  55          LS    2.90      84
  56          UD    0.53

  57          KK  OUTLET
  58          KM        COMBINE RT2 - RT3 - KYSWL5
  59          HC       3
  60          KO       0       1                     21

  61          KK  OPTIMZ
  62          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
  63          KO       0       1                     21
  64          BA    0.67
  65          LS    2.04    83.0
  66          UD    1.05
  67          ZZ
```

SECT34

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

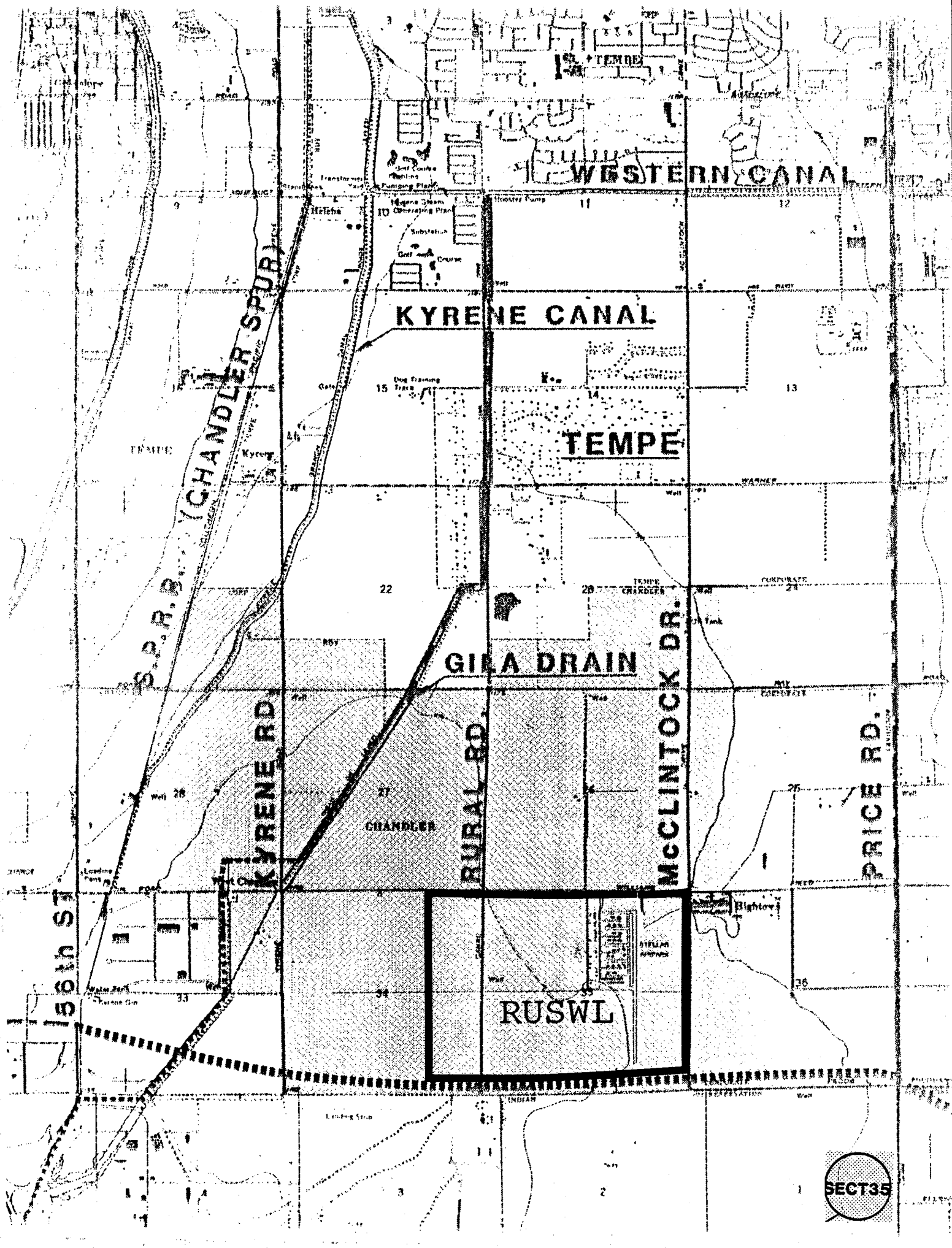
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	KYSWL1	28.	13.50	11.	3.	3.	.12		
ROUTED TO	RT1	28.	13.83	11.	3.	3.	.12		
HYDROGRAPH AT	KYSWL2	62.	12.83	15.	4.	4.	.10		
ROUTED TO	RT2	61.	12.92	14.	4.	4.	.10		
HYDROGRAPH AT	KYSWL3	3.	14.92	2.	1.	1.	.16		
3 COMBINED AT	COMB1	68.	13.17	27.	8.	8.	.38		
ROUTED TO	RT2	68.	13.33	27.	8.	8.	.38		
HYDROGRAPH AT	KYSWL4	25.	13.33	9.	3.	3.	.09		
ROUTED TO	RT3	25.	13.67	9.	3.	2.	.09		
HYDROGRAPH AT	KYSWL5	4.	14.42	2.	1.	1.	.19		
3 COMBINED AT	OUTLET	94.	13.42	38.	12.	11.	.67		
HYDROGRAPH AT	OPTIMZ	93.	13.50	39.	12.	12.	.67		

SECT34



Runoff Hydrographs for Drainage Subarea KYSWL

SECT34


WESTERN CANAL
KYRENE CANAL
TEMPE
GILA DRAIN
S.P.R.R. (CHANDLER SPUR)
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
160th ST
CHANDLER
RUSWL
SECT35

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 35  <RUSWL>
  2           ID        FLOWS TO RURAL AND SOUTHWEST LOOP
  3           ID        AREA LOCATED IN SECTION 35 - WEST OF PRICE ROAD & SOUTH OF CHANDLER RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT      5                    300
 10           IN     30
 11           IO      5       0       0

 12           KK  RUSWL1
 13           KM        CHANDLER - COMMERCIAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR COMMERCIAL AREA
 15           PH      1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.2145
 17           LS    3.0      92
 18           UD   0.45

 19           KK     RT1
 20           KM        ROUTE RUSWL1 HYDROGRAPH TO RUSWL3 CONFLUENCE
 21           RK   1200  .00330   0.016            TRAP.     0.0    25.0

 22           KK  RUSWL2
 23           KM        CHANDLER - RESIDENTIAL - 0.16 (OLD)
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 25           BA  0.0933
 26           LS    2.9      84
 27           UD   0.51

 28           KK     RT2
 29           KM        ROUTE RUSWL2 HYDROGRAPH TO RUSWL3 CONFLUENCE
 30           RK   1800  .00330   0.016            TRAP      0.0    25.0

 31           KK  RUSWL3
 32           KM        CHANDLER - AGRICULTURAL
 33           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 34           BA  0.0990
 35           LS    1.5      83
 36           UD   0.57

 37           KK   COMB1
 38           HC       3

 39           KK     RT3
 40           KM        ROUTE COMB1 HYDROGRAPH TO OUTLET
 41           RK   2200  .00330   0.016            TRAP      0.0    25.0
```

SECT35

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

  42          KK  RUSWL4
  43          KM        CHANDLER - RESIDENTIAL - 0.16
  44          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  45          BA   .1638
  46          LS    2.90      84
  47          UD    0.48

  48          KK  RUSWL5
  49          KM        CHANDLER - OPEN FIELD
  50          KM        COMPUTE RUNOFF HYDROGRAPH FOR OPEN FIELD
  51          BA  0.0890
  52          LS    1.00      83
  53          UD    0.39

  54          KK     RT4
  55          KM        ROUTE RUSWL5 HYDROGRAPH TO OUTLET
  56          RK    1000  .00330   0.016            TRAP     0.0    25.0

  57          KK  RUSWL6
  58          KM        CHANDLER - RESIDENTIAL - 0.16
  59          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  60          BA  0.1464
  61          LS     2.9      84
  62          UD    0.34

  63          KK   COMB2
  64          HC       3

  65          KK     RT5
  66          KM        ROUTE COMB2 HYDROGRAPH TO OUTLET
  67          RK    1400  .00330   0.016            TRAP     0.0    25.0

  68          KK  RUSWL7
  69          KM        CHANDLER - RESIDENTIAL - 0.16
  70          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  71          BA   .1281
  72          LS    2.90      84
  73          UD    0.34

  74          KK  RUSWL8
  75          KM        CHANDLER - PARK/SCHOOL
  76          KM        COMPUTE RUNOFF HYDROGRAPH FOR PARK/SCHOOL
  77          BA  0.0628
  78          LS       0      64
  79          UD    0.22

  80          KK  RUSWL9
  81          KM        CHANDLER - AGRICULTURAL
  82          KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
  83          BA  0.0961
  84          LS     1.5      83
  85          UD    0.23
```

SECT35

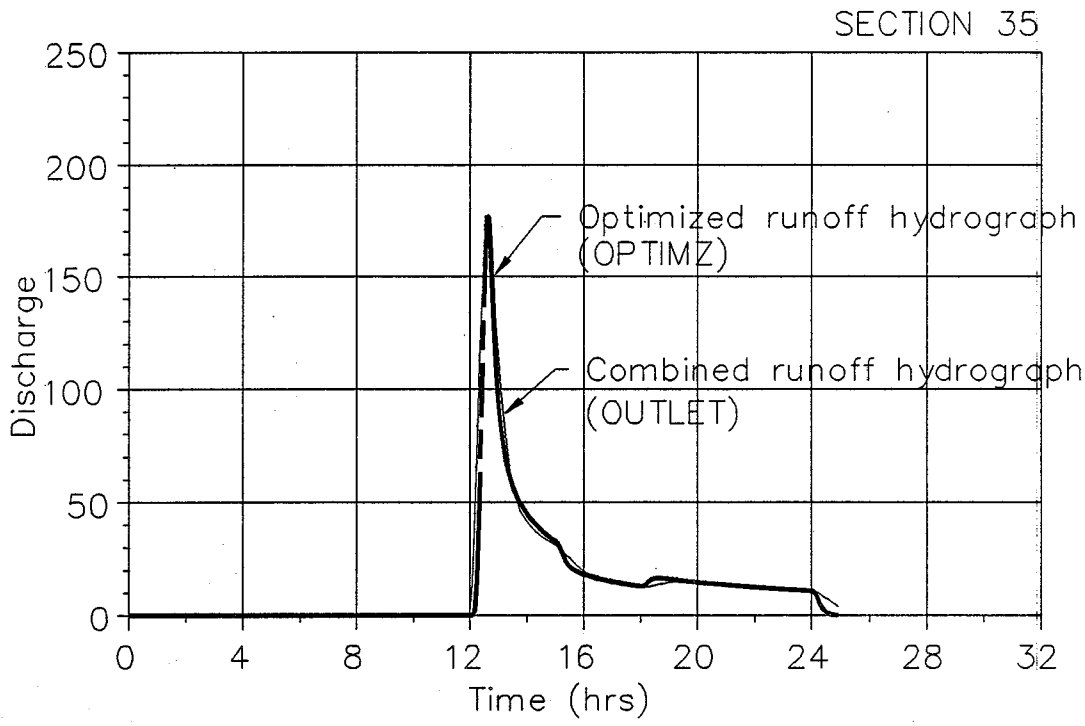
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  86          KK  OUTLET
  87          HC       5
  88          KO       0       1                       21

  89          KK  OPTIMZ
  90          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
  91          KO       0       1                       21
  92          BA    1.09
  93          LS    2.38  - 83.0
  94          UD    0.23
  95          ZZ
```

SECT35

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

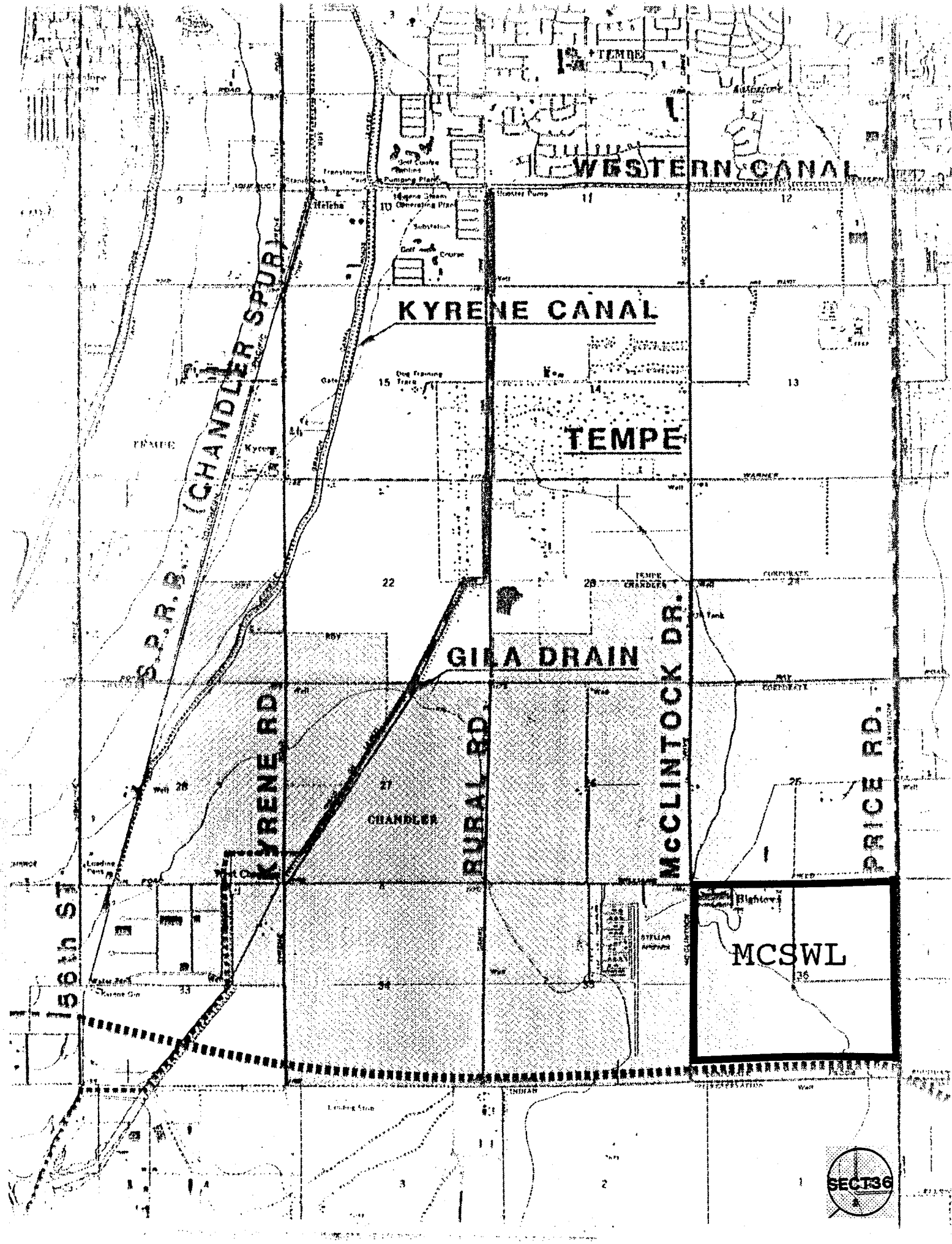
OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	RUSWL1	5.	14.75	4.	1.	1.	.21		
ROUTED TO	RT1	5.	14.92	4.	1.	1.	.21		
HYDROGRAPH AT	RUSWL2	2.	14.33	1.	0.	0.	.09		
ROUTED TO	RT2	2.	14.58	1.	0.	0.	.09		
HYDROGRAPH AT	RUSWL3	42.	12.83	10.	3.	3.	.10		
3 COMBINED AT	COMB1	42.	12.83	14.	5.	5.	.41		
ROUTED TO	RT3	42.	12.92	14.	5.	5.	.41		
HYDROGRAPH AT	RUSWL4	3.	14.33	2.	1.	1.	.16		
HYDROGRAPH AT	RUSWL5	74.	12.50	12.	4.	3.	.09		
ROUTED TO	RT4	74.	12.58	12.	4.	3.	.09		
HYDROGRAPH AT	RUSWL6	3.	14.00	2.	1.	1.	.15		
3 COMBINED AT	COMB2	74.	12.58	16.	5.	5.	.40		
ROUTED TO	RT5	73.	12.67	16.	5.	5.	.40		
HYDROGRAPH AT	RUSWL7	2.	14.00	2.	1.	1.	.13		
HYDROGRAPH AT	RUSWL8	32.	12.33	4.	1.	1.	.06		
HYDROGRAPH AT	RUSWL9	64.	12.42	10.	3.	3.	.10		
5 COMBINED AT	OUTLET	164.	12.58	45.	15.	14.	1.09		
HYDROGRAPH AT	OPTIMZ	177.	12.58	41.	14.	13.	1.09		

SECT35



Runoff Hydrographs for Drainage Subarea RUSWL

SECT35


WESTERN CANAL
KYRENE CANAL
TEMPE
S.P.R.R. (CHANDLER SPUR)
GILA DRAIN
KYRENE RD.
RURAL RD.
McCLINTOCK DR.
PRICE RD.
156th ST
CHANDLER
MCSWL
SECT36

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

              *DIAGRAM
  1           ID        PRICE ROAD OFFSITE HYDROLOGY - MODEL FOR SECTION 36  <MCSWL>
  2           ID        FLOWS TO MCCLINTOCK AND SOUTHWEST LOOP
  3           ID        AREA LOCATED IN SECTION 36 - WEST OF PRICE ROAD & SOUTH OF RAY RD
  4           ID        INITIAL ABSTRACTION USED TO REPRESENT DEVELOPMENT RETENTION PROVIDED
  5           ID        100 YEAR - 24 HOUR STORM  (PHOENIX DISTRIBUTION)
  6           ID        HDR - PHOENIX
  7           ID
  8           ID
  9           IT       5                    300
 10           IN      30
 11           IO       5       0       0

 12           KK  MCSWL2
 13           KM        CHANDLER - AGRICULTURAL
 14           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 15           PH       1   18.38    0.71    1.39    2.44    2.66    2.81    3.11    3.33    3.70
 16           BA  0.1550
 17           LS     1.5      83
 18           UD    0.88

 19           KK     RT1
 20           KM        ROUTE MCSWL2 HYDROGRAPH TO MCSWL3 CONFLUENCE
 21           RK    1600  .00200   0.016            TRAP     0.0    25.0

 22           KK  MCSWL3
 23           KM        CHANDLER - AGRICULTURAL
 24           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 25           BA  0.1700
 26           LS     1.5      83
 27           UD    0.91

 28           KK   COMB1
 29           KM        COMBINE MCSWL3 - RT1
 30           HC       2

 31           KK     RT2
 32           KM        ROUTE COMB2 HYDROGRAPH TO OUTLET
 33           RK    2600  .00200   0.016            TRAP     0.0    25.0

 34           KK  MCSWL1
 35           KM        CHANDLER - AGRICULTURAL
 36           KM        COMPUTE RUNOFF HYDROGRAPH FOR AGRICULTURAL AREA
 37           BA  0.0950
 38           LS     1.5      83
 39           UD    0.73

 40           KK  MCSWL4
 41           KM        CHANDLER - RESIDENTIAL - 0.16
 42           KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
 43           BA  0.1140
 44           LS     2.6      84
 45           UD    0.53
```

SECT36

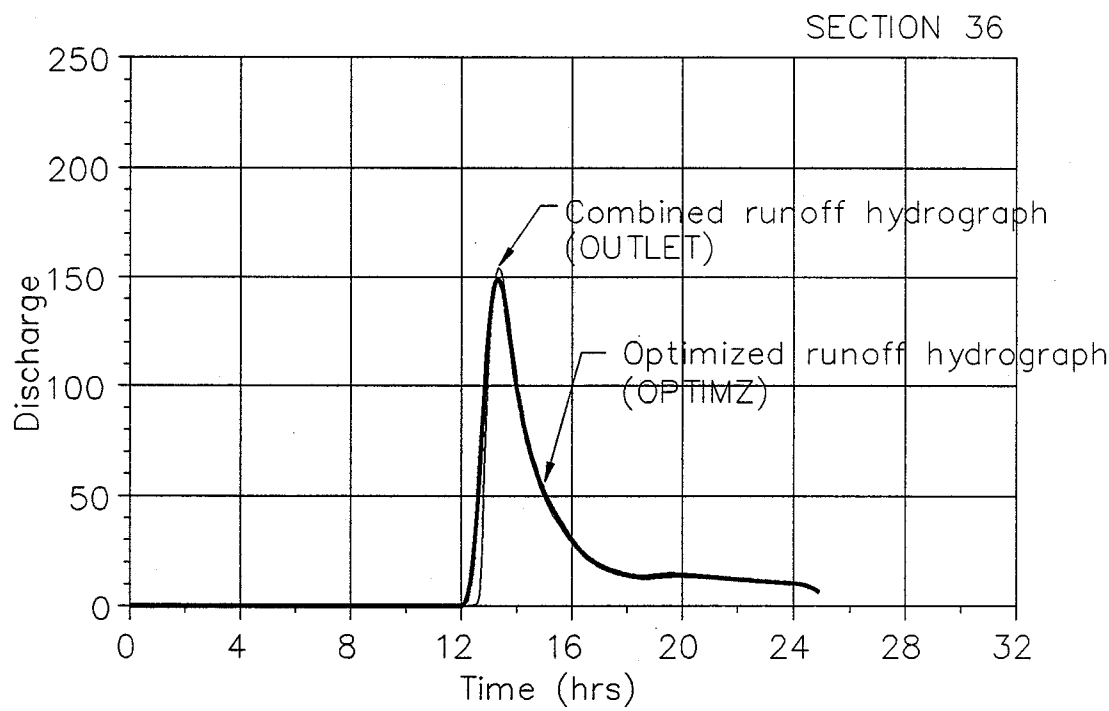
```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  46          KK   COMB2
  47          KM        COMBINE RT3 - MCSWL4
  48          HC       2

  49          KK     RT4
  50          KM        ROUTE COMB2 HYDROGRAPH TO MCSWL5 CONFLUENCE
  51          RK    1300  .00100   0.016            TRAP     0.0    25.0

  52          KK  MCSWL5
  53          KM        CHANDLER - RESIDENTIAL - 0.16
  54          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  55          BA   .1360
  56          LS    2.60      84
  57          UD    0.43

  58          KK   COMB3
  59          KM        COMBINE MCSWL5 - RT4
  60          HC       2

  61          KK     RT5
  62          KM        ROUTE COMB3 TO OUTLET
  63          RK    1300  .00100   0.016            TRAP     0.0    25.0

  64          KK  MCSWL6
  65          KM        CHANDLER - RESIDENTIAL - 0.16
  66          KM        COMPUTE RUNOFF HYDROGRAPH FOR RESIDENTIAL AREA
  67          BA  0.1610
  68          LS    2.60      84
  69          UD    0.73

  70          KK  OUTLET
  71          KM        COMBINE MCSWL6 - RT5 - RT2
  72          HC       3
  73          KO       0       1                     21

  74          KK  OPTIMZ
  75          KM        HYDROGRAPH USING OPTIMIZED PARAMTERS FOR OUTLET
  76          KO       0       1                     21
  77          BA    0.83
  78          LS    1.95    84.0
  79          UD    0.94
  80          ZZ
```

SECT36

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	MCSWL2	48.	13.17	15.	4.	4.	.16		
ROUTED TO	RT1	48.	13.25	15.	4.	4.	.16		
HYDROGRAPH AT	MCSWL3	52.	13.17	17.	5.	5.	.17		
2 COMBINED AT	COM31	99.	13.25	32.	9.	9.	.32		
ROUTED TO	RT2	99.	13.42	32.	9.	9.	.32		
HYDROGRAPH AT	MCSWL1	34.	13.00	9.	3.	3.	.09		
HYDROGRAPH AT	MCSWL4	7.	13.17	3.	1.	1.	.11		
2 COMBINED AT	COM32	40.	13.00	12.	4.	4.	.21		
ROUTED TO	RT4	40.	13.17	12.	4.	4.	.21		
HYDROGRAPH AT	MCSWL5	9.	13.00	4.	1.	1.	.14		
2 COMBINED AT	COM33	48.	13.08	16.	5.	5.	.34		
ROUTED TO	RT5	48.	13.25	16.	5.	5.	.34		
HYDROGRAPH AT	MCSWL6	8.	13.42	4.	2.	1.	.16		
3 COMBINED AT	OUTLET	154.	13.33	51.	16.	15.	.83		
HYDROGRAPH AT	OPTIMZ	149.	13.33	55.	17.	17.	.83		

SECT36

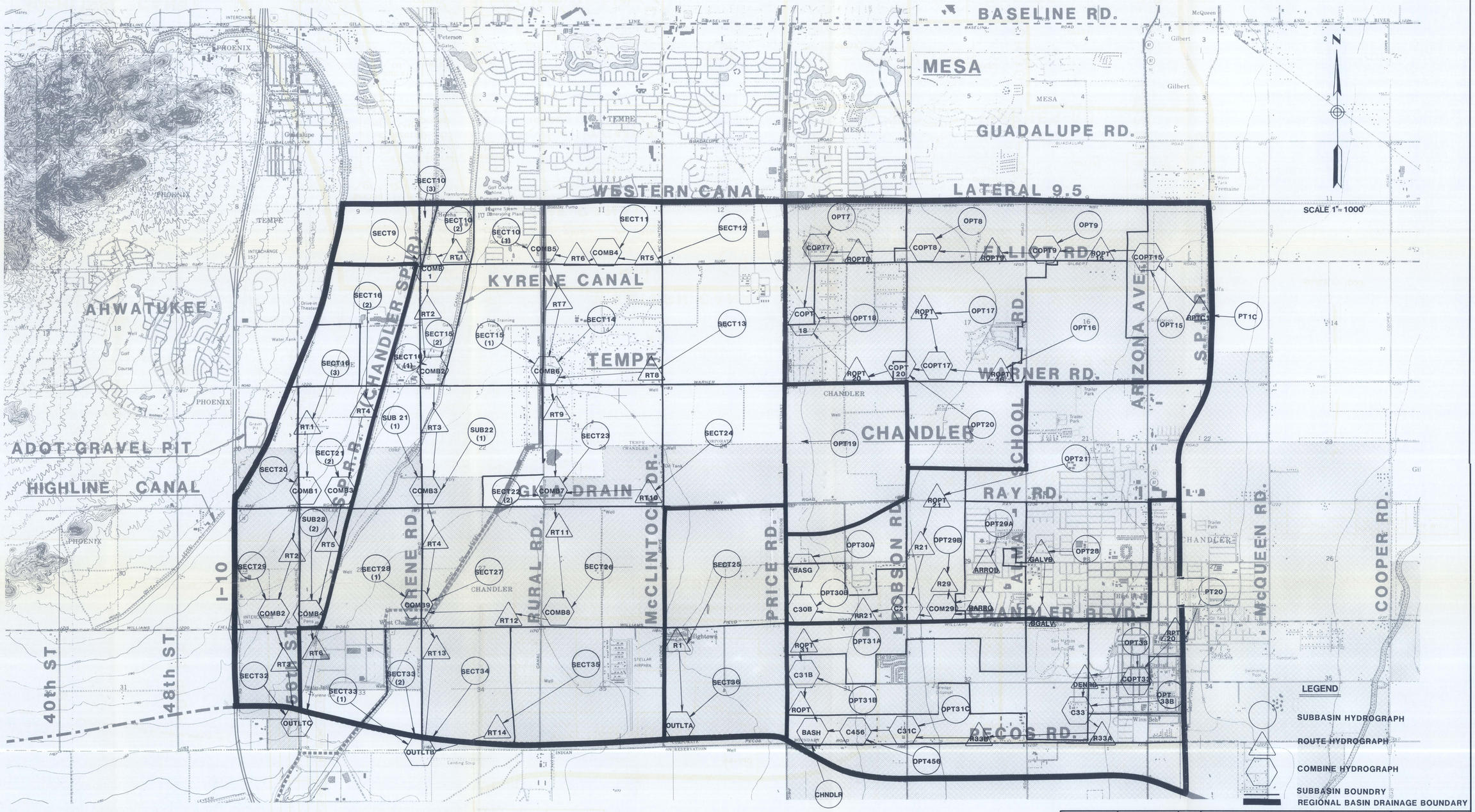


Runoff Hydrographs for Drainage Subarea MCSWL

SECT36

116390

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
	ARIZ.				



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

HDR Engineering, Inc.

ROUTE | MILEPOST | LOCATION

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY PLANS

HYDROLOGY STUDY
DRAINAGE AREA MAP
AND HEC-1 MODEL SCHEMATIC

SHEET 2 OF 5

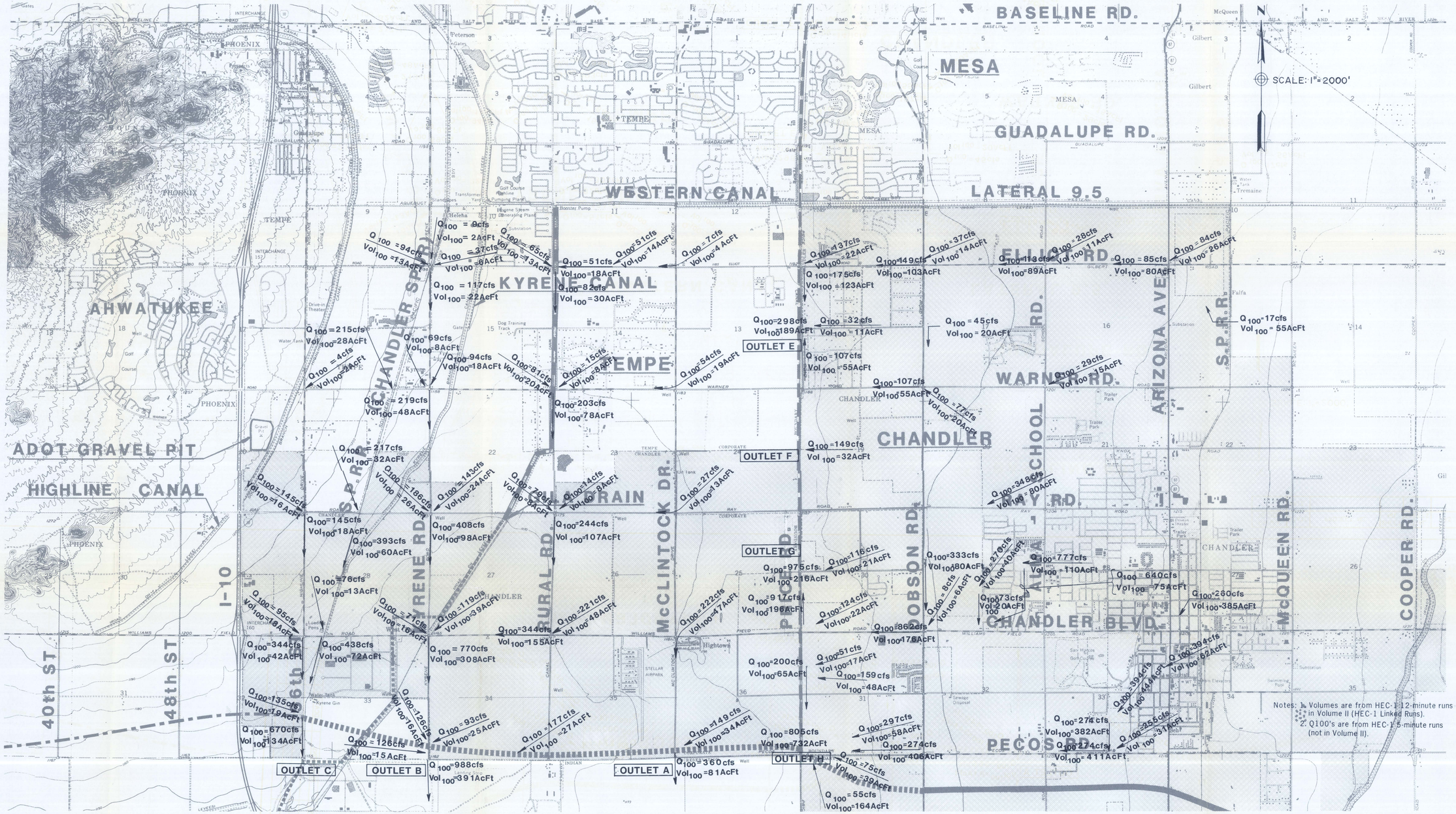
H-2222-01D

___ OF ___

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

116390

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
	ARIZ.				



Notes: 1. Volumes are from HEC-1 12-minute runs in Volume II (HEC-1 Linked Runs).
2. Q100's are from HEC-1 5-minute runs (not in Volume II).

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

HDR Engineering, Inc.

ROUTE | MILEPOST | LOCATION

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY PLANS

HYDROLOGY STUDY
PEAK DISCHARGE AND VOLUMES

SHEET 3 OF 5

H-2222-01D

OF