Drainage Report

for

LA CUENTISTA SUBDIVISION – Unit II

A Supplement to the Drainage Report for La Cuentista Subdivision Dated November 2003

Prepared by:

Wilson & Company, Inc.
4900 Lang Ave NE
Albuquerque, New Mexico 87109
(505) 348-4191

January 2007
WCI File No: 0660004701

WILSON & COMPANY

CITY OF ALBUQUERQUE

January 25, 2007

Dan Aguirre, PE
Wilson & Company
4900 Lang Ave
Albuquerque, NM 87109

Re: La Cuentista Subdivision Unit 2 Drainage Report
Engineer Stamp 1-23-07 (D10/D2)

Dear Mr. Aguirre,

Based upon information provided in your submittal dated 1-24-07, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board has approved the plan, please provide a mylar copy for my signature in order to obtain a Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso).

Prior to Release of SIA and Financial Guarantees, an Engineer's Certification of this grading plan will be required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept.
Development and Building Services

C: Chuck Caruso, CoA
file

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

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for

LA CUENTISTA SUBDIVISION – Unit II

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Prepared by:

Daniel S. Aguirre, PE
NM #11955

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Albuquerque, New Mexico 87109
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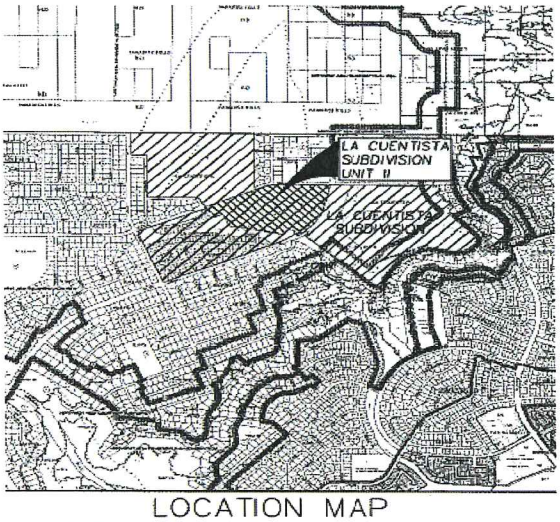
Summary

La Cuentista Subdivision - Unit II, a residential development, is Tract C and the second of five bulk land tracts which collectively comprise La Cuentista Subdivision. The 35.47 acres of Unit II (Tract C) is approximately 15% of the total La Cuentista Subdivision. The approved "Drainage Report for La Cuentista Subdivision" dated November 2003 by Wilson & Company, Inc., provides site and existing conditions information.

Drainage

Proposed Conditions/Modification:



LOCATION MAP
ZONE ATLAS MAP NO. C-10, C-11

Unit II (Tract C) approximately replicates Basin 213 from the approved Drainage Report. This basin is designated to discharge into Pond 4 along with Unit I (Tract A) discharge. Pond 4, located north of Kimmick Dr., along with the outfall structure to the Petroglyph National Monument allowed per agreement with COA Open Space Division, are currently under construction.

Site design of Unit I (Tract A), Unit II (Tract C) and plans for Tract B require modifications to the approved Drainage Report. Basins 201 and 202 make up Tract B, an as yet undesignated unit of La Cuentista. The approved Drainage Report routed Basin 201 flows through Pond 1 and then through Unit I (Tract A) basins into Pond 4. Basin 202 was routed through Basin 213 to Pond 4. Flows from Basin 201 are herein proposed to route through Basin 202 and a newly designated Pond 2. A maximum flow of 15 cfs from Pond 2 will then be directed into Basin 213 via appropriately sized storm drain pipe, with Basin 213 discharging to Pond 4, as previously designed.

Flows from Basin 301 and 302, previously designed to route through storm drain in Kimmick Drive and into Pond 8 will be routed through Basin 214 to Pond 8.

A review and the updating of hydraulic data led to changes to Tables 3 & 4 from the approved Drainage Report. These are presented below. Additionally, a revised **Proposed Conditions: Drainage Basin Map** (Plate 2) is provided herein.

Table 3: Summary of Fully Developed Flows Basin	Area (acres)	100_{year}-24_{hour} Peak Flow (Q_{100}) cfs
201	22.1	71.8
202	35.0	112.9
203	1.2	4.1
204	5.0	16.4
205	8.8	28.7
206	4.6	14.4
207	2.4	8.2
208	8.5	21.2
209	3.6	12.3
210	2.6	8.0
211	6.2	20.5
212	3.3	9.8
213	40.2	129.3
214	55.1	176.6
215	34.5	110.8
301	43.7	142.6
302	37.3	119.0
303	43.0	137.5
304	69.0	217.1

Table 4: Summary of Discharge Points – Fully Developed Pond #		100_{year} 6_{hour} Peak Flow (Q_{100}) cfs
4		87
8		106
7		42 (40 Allowable)
	Total discharge to Petroglyph NM	235 cfs
10	Calle Norteña/ Piedras Marcadas	15

Unit II Proposed Improvement.

The AHYMO discharge from Basin 213 is 130 cfs (See Appendix A). For design purposes for inlets and onsite storm drain, the sub-basin flows, totaling approximately the 130 cfs, are proportionately distributed based on basin areas. See Appendix B for Unit II hydrology and Sub-Basin Boundary Map.

Conclusion

The development of Unit II has been analyzed in this report. The project's design will adhere to the requirements of the approved Drainage Report dated November 2003 and all developed flows in Unit II will be conveyed to Pond 4, discharge through the required water quality standpipe and outfall structure being constructed as part of Unit I, with ultimate discharge to the Petroglyph National Monument. The system is designed to convey existing offsite flows through the site. Off site drainage basins will be required to detain developed flows as future development occurs.

APPENDIX A

```
***  LA CUENTISTA SUBDIVISION                                          ***
***  FULLY DEVELOPED CONDITIONS RUNOFF MODEL - REVISED JANUARY 2007
          ***
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
***  DESIGN STORM IS THE 100 YEAR - 24 HOUR STORM                                    ***
***  COA DPM TYPE 2, 24 HOUR STORM WITH A PEAK INTENSITY AT 1.4 HOURS
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
START                TIME = 0
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   1- COMPUTING RAINFALL                                                          ***
RAINFALL             TYPE = 2
                                 RAIN QUARTER = 0.00  INCHES

                                 RAIN ONE = 1.87
                                 RAIN SIX = 2.20
                                 RAIN DAY = 2.66
                                 DT  =  0.05     HOURS
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   2- COMPUTE TP FOR OFFSITE BASIN 301 (SET tp= MIN 0.133 HRS            ***
*COMPUTE LT TP                  LCODE=1   NK=3   ISLOPE=0
*                               LENGTH=250 FT   SLOPE=0.01      K=0.7
*                               LENGTH=2500 FT  SLOPE=0.02      K=3
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **

*S*   3- COMPUTE HYD FOR BASIN 301, (assume platted to 5 DU/ACRE, %D=50)

COMPUTE NM HYD       ID=1       HYDNO=301  DA=0.068  SQ MI
                                PERCENT A=10 B=15 C=25 D=50
                                TP=0.133 HOURS   MASSRAIN=-1
PRINT HYD            ID=1       CODE=5
*PUNCH HYD                    ID=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*  4-  Route HYDROGRAPH 301 through POND 5 (0.30/0.52ac surface/bottom, 2.20AF
stor req'd)
*S* Historical flow Basin 301 (100% A)= 74.42CFS use 75+/- thru 34" orifice plate
ROUTE RESERVOIR                 ID=2 HYD=POND.301.1  INFLOWID=1  CODE=5
                                OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)

                                0                0              0
                                21.82            0.154          0.5
                                30.86            0.316          1
                                37.80            0.486          1.5
                                43.65            0.665          2
                                48.80            0.853          2.5
                                53.46            1.049          3
                                57.74            1.255          3.5
                                61.73            1.470          4
                                65.47            1.694          4.5
                                69.02            1.928          5
                                72.38            2.172          5.5
                                75.60            2.427          6
PRINT HYD            ID=2       CODE=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*  5- Route POND 5 outflow (BASIN 301) through BASIN 302 via 36"X 1800'RCP
*S*       (24'/1800'= 0.15 slp) Add to basin 302 at pond 6, (#8)

COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=-1  SLP=0.015
                      DIAM=3.0  N=0.013

ROUTE MCUNGE            ID=3  HYD NO= 301.2  INFLOW ID=2
                        DT=0.0 L=1400 FT NS=0 SLOPE=0.015
PRINT HYD               ID=3      CODE=5
```

```
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    6- COMPUTE TP FOR BASIN 302 (LET tp= 0.133 MIN)                    ***
*COMPUTE LT TP                   LCODE=1 NK=3     ISLOPE=0
*                                LENGTH=100 FT    SLOPE=0.02       K=0.7
*                                LENGTH=1700 FT   SLOPE=0.02       K=3
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **

*S*    7- COMPUTE HYD FOR BASIN 302 (assume replat to 4 DU/Ac, D=42%, use 45%)
*S*       Historical flow (100% A)= 57.95CFS
COMPUTE NM HYD          ID=1      HYDNO=302  DA=0.058  SQ MI
                                  PERCENT A=10 B=15 C=30 D=45
                                  TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD               ID=1      CODE=5

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    8- ADD HYDROGRAPHS 301.2 (ROUTED THROUGH 302) AND 302 - INFLOW TO POND 6

ADD HYD                          ID=2     HYD=302.1       ID=1     ID=3
PRINT HYD                        ID=2     CODE=1
*PUNCH HYD                                ID=2

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    9- ROUTE HYDROGRAPH 302.1 through POND 6 (0.2/0.4AC surf/bottom, 1.5AF stor
cap)
*S*      Historical flow- 100% A (Basin 301= 74.42)+(Basin 302= 57.95)= 132.37CFS
*S*      discharge through 48" RCP w/ 45" orifice plate
ROUTE RESERVOIR                  ID=1 HYD=POND.302.2  INFLOWID=2  CODE=5
                                 OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)
                                    0              0             0
                                 38.23           0.103           0.5
                                 54.07           0.213           1.0
                                 66.22           0.330           1.5
                                 76.46           0.454           2.0
                                 85.49           0.585           2.5
                                 93.65           0.723           3.0
                                101.15           0.869           3.5
                                108.13           1.023           4.0
                                114.69           1.186           4.5
                                120.90           1.356           5.0
                                126.80           1.535           5.5
                                132.43           1.723           6.0
                                132.43           1.919           6.5
                                132.43           2.125           7.0

PRINT HYD                        ID=1     CODE=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   10- Route outflow from POND 6 (BASIN 301 & 302) through
*S*       48"x 2300'RCP (50/2300= 2.2% slp) through Basin 214 TO POND 8

COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=-1  SLP=0.022
                      DIAM=4.0  N=0.013

ROUTE MCUNGE            ID=2  HYD NO= 302.3  INFLOW ID=1
                        DT=0.0 L=2300 FT NS=0 SLOPE=0.022
PRINT HYD               ID=2      CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   76- COMPUTE TP FOR BASIN 214 (Let tp= 0.133= Min.)                    ***

*COMPUTE LT TP                   LCODE=1 NK=3     ISLOPE=0
*                                LENGTH=100 FT    SLOPE=0.02       K=0.7
*                                LENGTH=0 FT      SLOPE=0.02       K=2
*                                LENGTH=1250 FT   SLOPE=0.02       K=3
```

```
*S*   77- COMPUTE HYD FOR BASIN 214
COMPUTE NM HYD        ID=1       HYDNO=214  DA=0.086 SQ MI
                                 PERCENT A=10 B=15 C=30 D=45
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD             ID=1     CODE=5
* * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   78- ADD HYDROGRAPHS 302.3 AND 214

ADD HYD                          ID=3    HYD=214.1       ID=2    ID=1
PRINT HYD                        ID=3    CODE=1
PUNCH HYD             ID=3

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   79- Route HYDROGRAPH 214.1 through POND 8 (1.7/2.2AC surf/btm, 11.3AF
stor.cap.)
ROUTE RESERVOIR                  ID=2 HYD=POND.214.2  INFLOWID=3  CODE=5
                                 OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)

                                  0               0              0
                                 40.82           0.859          0.5
                                 57.73           1.738          1
                                 70.71           2.635          1.5
                                 81.64           3.552          2
                                 91.28           4.489          2.5
                                 99.99           5.445          3
                                108.00           6.421          3.5
                                115.46           7.417          4
                                122.47          8.434          4.5
                                129.09          9.472          5
                                135.39          10.530          5.5
                                141.41          11.609          6
                                141.41          12.710          6.5
                                141.41          13.831          7

PRINT HYD                        ID=2    CODE=1

* * * * * * * * * *** FLOW TO MARIPOSA CHANNEL* * * * * * * * * * * * * * * * * * * **
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   11- COMPUTE TP FOR BASIN P-303 (let TP= 0.133 hrs= min)                    ***
*COMPUTE LT TP                   LCODE=1 NK=2    ISLOPE=0
*                                LENGTH=100 FT   SLOPE=0.02      K=0.7
*                                LENGTH=0 FT     SLOPE=0.02      K=2
*                                LENGTH=2000 FT  SLOPE=0.02      K=3

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

*S*   12- COMPUTE HYD FOR BASIN 303 (assume replat to 4 DU/Ac, D=42%, use 45%)
*S*       BASIN 303 Historical flow (100% A)= 75.29CFS
COMPUTE NM HYD         ID=1      HYDNO=303  DA=0.067 SQ MI
                                 PERCENT A=10 B=15 C=30 D=45
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD              ID=1      CODE=5
*PUNCH HYD             ID=1

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   13- ROUTE HYDROGRAPH 303 THROUGH POND 9 (0.3/0.52AC surface/bottom, 2.11AF
stor. cap.)
*S*       303 Hist. flow= 75.29CFS, discharge through 36" RCP w/ 34" orifice plate
ROUTE RESERVOIR                  ID=2 HYD=POND.303.1  INFLOWID=1  CODE=5
                                 OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)
```

```
                                   0                0                0
                                   21.82            0.154            0.5
                                   30.86            0.316            1
                                   37.80            0.486            1.5
                                   43.65            0.665            2
                                   48.80            0.853            2.5
                                   53.46            1.049            3
                                   57.74            1.255            3.5
                                   61.73            1.470            4
                                   65.47            1.694            4.5
                                   69.02            1.928            5
                                   72.38            2.172            5.5
                                   75.60            2.427            6
                                   75.60            2.691            6.5
                                   75.60            2.966            7

PRINT HYD                          ID=2    CODE=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    14- Route outflow from POND 9 (BASIN 303.1) through 36"x 1300'RCP
***         (50/1300=3.9% slp) through BASIN 215 to POND 10

COMPUTE RATING CURVE CID=1  VS NO=1  NO SEGS=-1  SLP=0.03
                     DIAM=3.0  N=0.013


ROUTE MCUNGE               ID=3  HYD NO= 303.2  INFLOW ID=2
                           DT=0.0 L=1300 FT NS=0 SLOPE=0.039
PRINT HYD                  ID=3     CODE=5

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   81- COMPUTE TP FOR BASIN P-215 (Let tp= 0.133 Min.)                                    ***
*COMPUTE LT TP                     LCODE=1 NK=3    ISLOPE=0
*                                  LENGTH=100 FT   SLOPE=0.02      K=0.7
*                                  LENGTH=0 FT     SLOPE=0.02      K=2
*                                  LENGTH=1250 FT  SLOPE=0.02      K=3

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   82- COMPUTE HYD FOR BASIN P-215
COMPUTE NM HYD          ID=1       HYDNO=215  DA=0.054 SQ MI
                                   PERCENT A=10 B=15 C=30 D=45
                                   TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD               ID=1     CODE=5

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   83- ADD HYDROGRAPHS 303.2 AND 215

ADD HYD                            ID=2    HYD=215.1       ID=1    ID=3
PRINT HYD                          ID=2    CODE=1

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   85- Route HYDROGRAPH 215.1 through POND 10 (1.0/0.7AC surf/btm, 4.65AF
stor.cap.)
ROUTE RESERVOIR                    ID=1 HYD=POND.215.2  INFLOWID=2  CODE=5
                                   OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)

                                    0               0               0
                                    4.39            0.5             0.5
                                    6.21            1.3             1
                                    8.78            2.6             2
                                   10.75            3.9             3
                                   12.42            5.2             4
                                   13.88            6.5             5
```

```
                                15.21           7.8             6
                                15.21           9.1             7

PRINT HYD                       ID=1    CODE=1
* * * * * * * * * * ** * FLOW TO PIEDRAS MARCADAS * * * * * * * * * * * * * * * * * * **
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    15- COMPUTE TP FOR OFFSITE BASIN 304 Let TP= 0.133 hrs= min.)        ***
*COMPUTE LT TP                  LCODE=1 NK=3    ISLOPE=0
*                               LENGTH=100 FT   SLOPE=0.020     K=0.7
*                               LENGTH=3500 FT  SLOPE=0.020     K=3

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   16- Compute HYD for BASIN 304 (ex.platting 2.33+/- DU/Acre => 35%D, use 40%
*S*       BASIN 304 @ 100% A: Historical flow area= 0.05 sq mi, flow= 41.24cfs
COMPUTE NM HYD        ID=1       HYDNO=304  DA=0.108  SQ MI
                                 PERCENT A=10 B=15 C=35 D=40
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD             ID=1       CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   17- Route HYDROGRAPH 304 through POND 7 (H=4.0', 0.40/0.25AC surf/bottom,
1.14AF stor.
*S*       cap.). 304 historical: 100% A;area= 0.05 sq mi; flow= 41.24cfs;
*S*       discharge through 28" orifice plate into 30' RCP
ROUTE RESERVOIR                 ID=2 HYD=POND.304.1  INFLOWID=1  CODE=5
                                OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)

                                 0                0              0
                                14.80            0.381          0.5
                                20.93            0.775          1
                                25.64            1.182          1.5
                                29.60            1.602          2
                                33.10            2.035          2.5
                                36.26            2.482          3
                                39.16            2.942          3.5
                                41.86            3.416          4
                                41.90            3.904          4.5
                                42.00            4.407          5


PRINT HYD                       ID=2    CODE=1
* * * * * * * * * * ** FLOW TO MARIPOSA BASIN * * * * * * * * * * * * * * * * * * * * **
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   23- COMPUTE TP FOR BASIN P-203 (let TP= 0.133= Min.)                    ***
*COMPUTE LT TP                  LCODE=1 NK=3    ISLOPE=0
*                               LENGTH=100 FT   SLOPE=0.02      K=0.7
*                               LENGTH=0 FT     SLOPE=0.02      K=2
*                               LENGTH=3500 FT  SLOPE=0.02      K=3
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **

*S*   24- COMPUTE HYD FOR BASIN P-203 (2.5 DU/acre, use D=45)
COMPUTE NM HYD        ID=2       HYDNO=203  DA=0.002  SQ MI
                                 PERCENT A=10 B=15 C=30 D=45
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD             ID=2     CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   31- COMPUTE TP FOR BASIN P-204 (Let tp= 0.133= Min.)                    ***
*COMPUTE LT TP                  LCODE=1 NK=3    ISLOPE=0
*                               LENGTH=100 FT   SLOPE=0.02      K=0.7
*                               LENGTH=0 FT     SLOPE=0.02      K=2
*                               LENGTH=1250 FT  SLOPE=0.02      K=3
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
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```
***    32- COMPUTE HYD FOR BASIN P-204 (actual 3.3DU/acre, assume 4 DU/Acre=>
***                               42%D, use 45%D)
COMPUTE NM HYD          ID=1        HYDNO=204  DA=0.008 SQ MI
                                    PERCENT A=10 B=15 C=30 D=45
                                    TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD               ID=1      CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    84- ADD HYDROGRAPHS 203 AND 204

ADD HYD                 ID=5      HYD=204.2       ID=1     ID=2
PRINT HYD               ID=5      CODE=1
*PUNCH HYD              ID=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    33- Route HYDROGRAPH 204.2 through BASIN 208 IN 24'X570 LF PIPE
***
COMPUTE RATING CURVE CID=1  VS NO=1  NO SEGS=-1  SLP=0.04
                     DIAM=2.0  N=0.013


ROUTE MCUNGE              ID=10  HYD NO= 204.3  INFLOW ID=5
                          DT=0.0 L=570 FT NS=0 SLOPE=0.04
PRINT HYD                 ID=10     CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    34- COMPUTE TP FOR BASIN P-205  (Let tp= 0.133= Min.)                ***
*COMPUTE LT TP                      LCODE=1 NK=3     ISLOPE=0
*                                   LENGTH=100 FT    SLOPE=0.02       K=0.7
*                                   LENGTH=0 FT      SLOPE=0.02       K=2
*                                   LENGTH=1250 FT   SLOPE=0.02       K=3

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

*S*    35- COMPUTE HYD FOR BASIN P-205 (assume 4 DU/Acre=> 42%D, use 45%D)
COMPUTE NM HYD          ID=1        HYDNO=205  DA=0.014 SQ MI
                                    PERCENT A=10 B=15 C=30 D=45
                                    TP=0.0 HOURS   MASSRAIN=-1

PRINT HYD               ID=1      CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    36- ROUTE HYDROGRAPH 205 THROUGH PIPE TO CONFLUENCE W/ BASIN 208
COMPUTE RATING CURVE CID=1  VS NO=1  NO SEGS=-1  SLP=0.02
                     DIAM=4.0  N=0.013


ROUTE MCUNGE              ID=2  HYD NO= 205.1  INFLOW ID=1
                          DT=0.0 L=800 FT NS=0 SLOPE=0.02
PRINT HYD                 ID=2      CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    45- COMPUTE TP FOR BASIN P-208 (Let tp= 0.133= Min.)                 ***
*COMPUTE LT TP                      LCODE=1 NK=3     ISLOPE=0
*                                   LENGTH=100 FT    SLOPE=0.02       K=0.7
*                                   LENGTH=0 FT      SLOPE=0.02       K=2
*                                   LENGTH=1250 FT   SLOPE=0.02       K=3

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

***    46- COMPUTE HYD FOR BASIN P-208 (actual 0.4DU/acre=> 10%D, use 20%D)
COMPUTE NM HYD          ID=1        HYDNO=208  DA=0.013 SQ MI
                                    PERCENT A=10 B=50 C=20 D=20
                                    TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD               ID=1      CODE=5
```

```
*PUNCH HYD              ID=1
* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   47- ADD HYDROGRAPHS 205.1 and 208

ADD HYD                         ID=3    HYD=208.1       ID=1    ID=2
PRINT HYD                       ID=3    CODE=1
* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   48- ADD HYDROGRAPHS 204.3 AND 208.1

ADD HYD                         ID=1    HYD=208.2       ID=3    ID=10
PRINT HYD                       ID=1    CODE=1
* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **

*S*51- ROUTE ADDED FLOWS AT HYDROGRAPH 208.2 through PIPE TO POND 4
COMPUTE RATING CURVE CID=1  VS NO=1  NO SEGS=-1  SLP=0.025
                     DIAM=4.0  N=0.013


ROUTE MCUNGE                ID=5  HYD NO= 208.3  INFLOW ID=1
                            DT=0.0 L=814 FT NS=0 SLOPE=0.025
PRINT HYD                   ID=5     CODE=5

* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   37- COMPUTE TP FOR BASIN P-206 (Let tp= 0.133= Min.)                   ***
*COMPUTE LT TP                  LCODE=1 NK=3    ISLOPE=0
*                               LENGTH=100 FT   SLOPE=0.02      K=0.7
*                               LENGTH=0 FT     SLOPE=0.02      K=2
*                               LENGTH=1250 FT  SLOPE=0.02      K=3

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

*S*   38- COMPUTE HYD FOR BASIN P-206 (assume 4 DU/Acre=> 42%D, use 45%D)
COMPUTE NM HYD          ID=1         HYDNO=206  DA=0.007 SQ MI
                                     PERCENT A=10 B=15 C=30 D=45
                                     TP=0.0 HOURS   MASSRAIN=-1

PRINT HYD               ID=1     CODE=5

* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   59- COMPUTE TP FOR BASIN P-210 (let tp=0.133= Min.)                    ***

*COMPUTE LT TP                  LCODE=1 NK=3    ISLOPE=0
*                               LENGTH=100 FT   SLOPE=0.02      K=0.7
*                               LENGTH=0 FT     SLOPE=0.02      K=2
*                               LENGTH=1250 FT  SLOPE=0.02      K=3
* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **

*S*   60- COMPUTE HYD FOR BASIN P-210 (3.0 DU/acre=> 35%D, use 40%D)
COMPUTE NM HYD          ID=2         HYDNO=210  DA=0.004 SQ MI
                                     PERCENT A=10 B=15 C=35 D=40
                                     TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD               ID=2     CODE=5
* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   - ADD HYDROGRAPHS 206 AND 210

ADD HYD                         ID=3    HYD=210.1       ID=1    ID=2
PRINT HYD                       ID=3    CODE=1
* * * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   62- Compute TP for BASIN P-211 (let tp=0.133= Min.)                    ***
*COMPUTE LT TP                  LCODE=1 NK=3    ISLOPE=0
*                               LENGTH=100 FT   SLOPE=0.02      K=0.7
*                               LENGTH=0 FT     SLOPE=0.02      K=2
```

```
*                                LENGTH=1250 FT  SLOPE=0.02      K=3

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

*S*   63- COMPUTE HYD FOR BASIN P-211 (3.7 DU/acre=> 40%D, use 45%D)
COMPUTE NM HYD        ID=1       HYDNO=211  DA=0.010 SQ MI
                                 PERCENT A=10 B=15 C=30 D=45
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD             ID=1     CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   64- ADD HYDROGRAPHS 210.1 AND 211

ADD HYD                          ID=2    HYD=211.1       ID=1    ID=3
PRINT HYD                        ID=2    CODE=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   41- COMPUTE TP FOR BASIN P-207 (Let tp= 0.133= Min.)                    ***
*COMPUTE LT TP                   LCODE=1 NK=3    ISLOPE=0
*                                LENGTH=100 FT   SLOPE=0.02      K=0.7
*                                LENGTH=0 FT     SLOPE=0.02      K=2
*                                LENGTH=1250 FT  SLOPE=0.02      K=3

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

*S*   42- COMPUTE HYD FOR BASIN P-207 (actual 3.7DU/acre, assume 4 DU/Acre=>
*                              42%D, use 45%D)
COMPUTE NM HYD        ID=1       HYDNO=207  DA=0.004 SQ MI
                                 PERCENT A=10 B=15 C=30 D=45
                                 TP=0.0 HOURS   MASSRAIN=-1

PRINT HYD             ID=1     CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   - ADD HYDROGRAPHS 211.1 AND 207

ADD HYD                          ID=3    HYD=207.1       ID=1    ID=2
PRINT HYD                        ID=3    CODE=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   52- Compute TP for BASIN P-209 (Let tp=0.133= Min.)                     ***

*COMPUTE LT TP                   LCODE=1 NK=3    ISLOPE=0
*                                LENGTH=100 FT   SLOPE=0.02      K=0.7
*                                LENGTH=0 FT     SLOPE=0.02      K=2
*                                LENGTH=1250 FT  SLOPE=0.02      K=3

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

*S*   53- Compute HYD for BASIN 209 (3.86du/acre=> 41%D, use 45%D)
COMPUTE NM HYD        ID=1       HYDNO=209  DA=0.006 SQ MI
                                 PERCENT A=10 B=15 C=30 D=45
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD             ID=1     CODE=5
*PUNCH HYD             ID=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   - ADD HYDROGRAPHS 207.1 AND 209

ADD HYD                          ID=2    HYD=209.1       ID=1    ID=3
PRINT HYD                        ID=2    CODE=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   66- COMPUTE TP FOR BASIN P-212 (Let TP=0.133= Min.)                     ***
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*COMPUTE LT TP                   LCODE=1 NK=3    ISLOPE=0
*                                LENGTH=100 FT   SLOPE=0.02      K=0.7
```

```
*                                LENGTH=0 FT     SLOPE=0.02      K=2
*                                LENGTH=1250 FT  SLOPE=0.02      K=3

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

*S*   67- Computing HYD for BASIN P-212 (2.5 DU/acre=> 30%D, use 35%D)
COMPUTE NM HYD        ID=1       HYDNO=212  DA=0.005 SQ MI
                                 PERCENT A=10 B=15 C=40 D=35
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD             ID=1     CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   68- ADD HYDROGRAPHS 209.1 AND 212

ADD HYD                          ID=3    HYD=212.1       ID=2    ID=1
PRINT HYD                        ID=3    CODE=1
*PUNCH HYD                        ID=3
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   69  ROUTE HYDROGRAPH 212.1 down Kimmick in 48"x 175' RCP to POND 4
COMPUTE RATING CURVE CID=1  VS NO=1  NO SEGS=-1  SLP=0.001
                    DIAM=4.0  N=0.013


ROUTE MCUNGE            ID=2  HYD NO= 212.2  INFLOW ID=3
                        DT=0.0 L=175 FT NS=0 SLOPE=0.001
PRINT HYD               ID=2     CODE=5

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   70- Add HYDROGRAPHS 212.2 TO 208.3 (At POND 4)

ADD HYD                          ID=6    HYD=212.3       ID=2    ID=5
PRINT HYD                        ID=6    CODE=1
*PUNCH HYD                        ID=6
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   19- COMPUTE TP FOR BASIN 201 (let TP= 0.133= Min.)                              ***

*COMPUTE LT TP                   LCODE=1 NK=3    ISLOPE=0
*                                LENGTH=250 FT   SLOPE=0.01      K=0.7
*                                LENGTH=0 FT     SLOPE=0.02      K=2
*                                LENGTH=1250 FT  SLOPE=0.02      K=3

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

*S*   20- COMPUTE HYD FOR BASIN P-201 (assume 4 DU/Acre=> 42%D, use 45%D)
COMPUTE NM HYD        ID=1       HYDNO=201  DA=0.035  SQ MI
                                 PERCENT A=10 B=15 C=30 D=45
                                 TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD             ID=1     CODE=5
*PUNCH HYD             ID=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **

*S*   21- Route HYDROGRAPH 201 through POND 1 (0.5/0.25AC surf/btm, 1.65AF stor.
cap)
*S*       discharge 15.21cfs through 15" orifice plate route to POND 2
ROUTE RESERVOIR                  ID=2 HYD=POND.201.1  INFLOWID=1  CODE=5
                                 OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)

                                  0               0              0
                                  4.39            0.129          0.5
                                  6.21            0.265          1
                                  7.60            0.408          1.5
                                  8.78            0.560          2
```

```
                                    9.82            0.719           2.5
                                   10.75            0.887           3
                                   11.62            1.063           3.5
                                   12.42            1.248           4
                                   13.17            1.441           4.5
                                   13.88            1.644           5
                                   14.56            1.856           5.5
                                   15.21            2.077           6
                                   15.21            2.308           6.5
                                   15.21            2.549           7

PRINT HYD                          ID=2    CODE=1

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   22- Route outflow from POND 1 (BASIN 201) in 24"PIPE through BASIN 202 TO
*s*   NEW POND #2 IN BASIN 202
COMPUTE RATING CURVE CID=1  VS NO=1  NO SEGS=-1  SLP=0.005
                     DIAM=2.0  N=0.013


ROUTE MCUNGE             ID=3  HYD NO= 201.2  INFLOW ID=2
                         DT=0.0 L=1000 FT NS=0 SLOPE=0.001
PRINT HYD                ID=3     CODE=5
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   27- COMPUTE TP FOR BASIN P-202 (set tp= 0.133= Min.)                          ***
*COMPUTE LT TP                    LCODE=1 NK=3    ISLOPE=0
*                                 LENGTH=100 FT   SLOPE=0.02      K=0.7
*                                 LENGTH=0 FT     SLOPE=0.02      K=2
*                                 LENGTH=3500 FT  SLOPE=0.02      K=3

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

***   28- COMPUTE HYD FOR BASIN P-202 (assume 4 DU/Acre=> 42%D, use 45%D)
COMPUTE NM HYD           ID=1       HYDNO=202  DA=0.055  SQ MI
                                    PERCENT A=10 B=15 C=30 D=45
                                    TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD                ID=1     CODE=5
*PUNCH HYD               ID=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   28A- Add HYDROGRAPHS 201.2 and 202

ADD HYD                            ID=2    HYD=202.1       ID=1    ID=3
PRINT HYD                          ID=2    CODE=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*    29- Route HYDROGRAPH 202.1 Through POND 2 (0.77/0.5AC surf/btm, 3.50AF stor.
cap.)
*S*       discharge 15.21cfs through 15" orifice plate into Rosa Parks System
ROUTE RESERVOIR                    ID=3 HYD=POND.202.2  INFLOWID=2  CODE=5
                                   OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)

                                    0               0               0
                                   4.39            0.255           0.5
                                   6.21            0.521           1
                                   7.60            0.797           1.5
                                   8.78            1.084           2
                                   9.82            1.381           2.5
                                   10.75           1.690           3
                                   11.62           2.011           3.5
                                   12.42           2.343           4
                                   13.17           2.687           4.5
                                   13.88           3.043           5
                                   14.56           3.411           5.5
```

```
                                  15.21          3.792          6
                                  15.21          4.185          6.5
                                  15.21          4.591          7

PRINT HYD                         ID=3    CODE=1

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   56A- Compute TP for BASIN 213 (Let tp=0.133= Min.)                              ***
*COMPUTE LT TP                    LCODE=1 NK=3    ISLOPE=0
*                                 LENGTH=100 FT   SLOPE=0.02      K=0.7
*                                 LENGTH=0 FT     SLOPE=0.02      K=2
*                                 LENGTH=1250 FT  SLOPE=0.02      K=3

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

*S*   56B- COMPUTE HYD FOR BASIN 213 (3.86du/acre=> 41%D, use 45%D)
COMPUTE NM HYD          ID=1       HYDNO=213  DA=0.063 SQ MI
                                   PERCENT A=10 B=15 C=30 D=45
                                   TP=0.133 HOURS   MASSRAIN=-1

PRINT HYD               ID=1     CODE=5
*PUNCH HYD               ID=1

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   56C- Add HYDROGRAPH 202.2 (outflow from POND 2) and 213

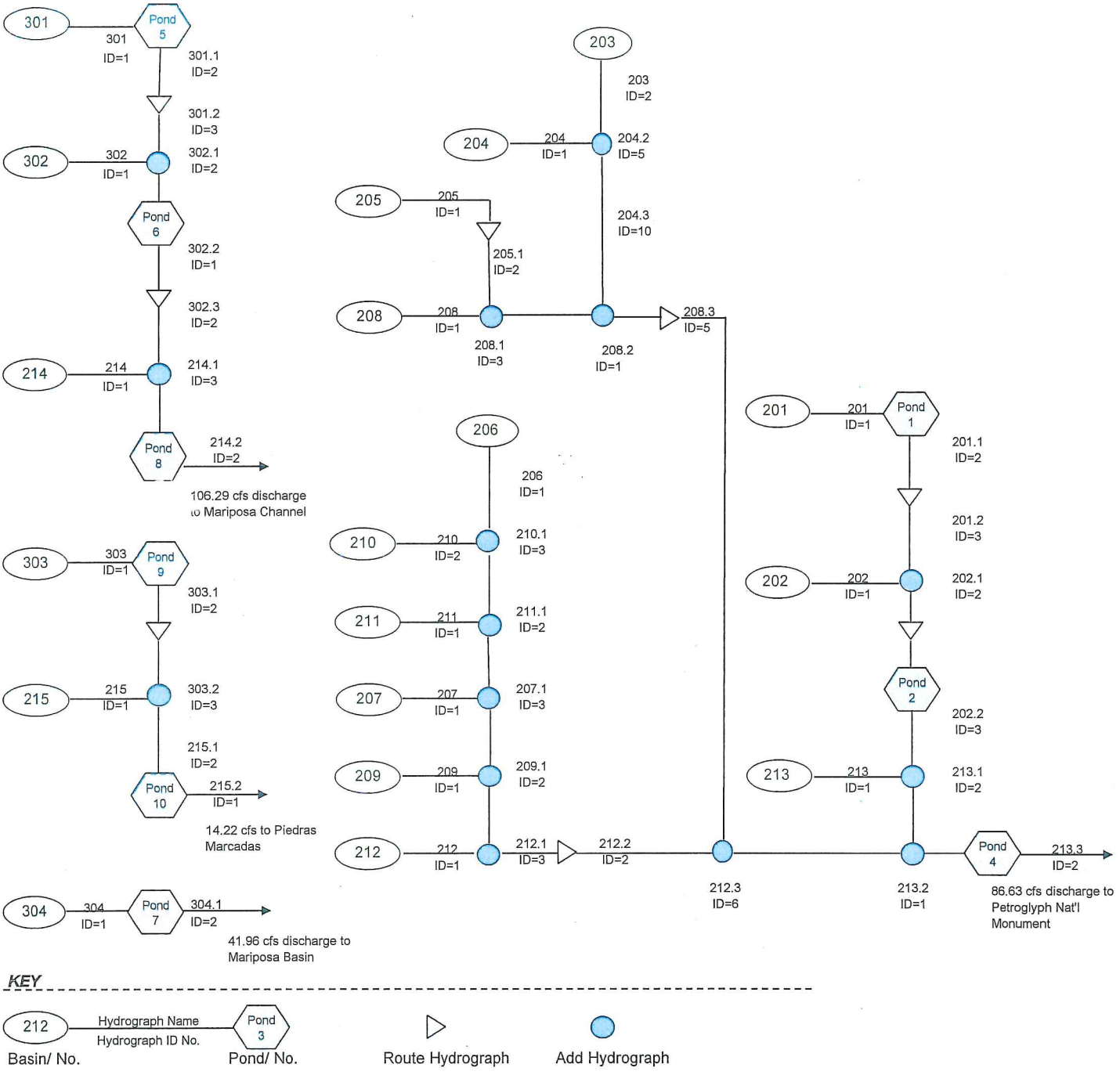
ADD HYD                 ID=2     HYD=213.1     ID=1     ID=3
PRINT HYD               ID=2     CODE=1
*PUNCH HYD              ID=2
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   56D- Add HYDROGRAPHS 212.3 and 213.1 (INFLOW TO POND 4)
ADD HYD                           ID=1    HYD=213.2       ID=2    ID=6
PRINT HYD                         ID=1    CODE=1
*PUNCH HYD                        ID=1
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
*S*   57- Route BASIN 213.1 through POND 4
ROUTE RESERVOIR                   ID=2 HYD=POND.213.3  INFLOWID=1  CODE=5
                                  OUTFLOW(CFS)   STORAGE(AC-FT)   ELEV(FT)

                                     0.0            0.0              5298
                                    71.8            0.82             5299
                                    76.5            1.73             5300
                                    81.0            2.72             5301
                                    85.1            3.80             5302
                                    89.1            4.97             5303
                                    93.0            6.23             5304
                                    96.7            7.58             5305
                                   100.2            9.03             5306


PRINT HYD                         ID=2    CODE=1

* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
* * * * * * * * * * *** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * **
FINISH
```

La Cuentista; Hydrologic Model Diagram: Fully Developed Conditions - Revised January 2007



```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =01/16/2007
INPUT FILE = C:\AHYMO\P100_24.DAT                                                     USER NO.= AHYMO-C-9803c01UNMLIB-AH

                                FROM  TO                    PEAK          RUNOFF                TIME TO    CFS       PAGE =   1
                    HYDROGRAPH   ID   ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
COMMAND          IDENTIFICATION  NO.  NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)    (HOURS)   ACRE      NOTATION

START                                                                                                  TIME=       .00
*S*   1- COMPUTING RAINFALL                                          ***
RAINFALL  TYPE= 2                                                                                      RAIN24=    2.660
*S*   2- COMPUTE TP FOR OFFSITE BASIN 301 (SET tp= MIN 0.133 HRS            ***
*S*   3- COMPUTE HYD FOR BASIN 301, (assume platted to 5 DU/ACRE, %D=50)
COMPUTE NM HYD       301.00   -     1        .06800      142.62       5.767      1.59006    1.500     3.277 PER IMP=   50.00
*S*  4-  Route HYDROGRAPH 301 through POND 5 (0.30/0.52ac surface/bottom, 2.20AF
*S* Historical flow Basin 301 (100% A)= 74.42CFS use 75+/- thru 34" orifice plat
ROUTE RESERVOIR   POND.301.1   1    2        .06800       64.26       5.767      1.59006    1.700     1.477 AC-FT=     1.622
*S*  5- Route POND 5 outflow (BASIN 301) through BASIN 302 via 36"X 1800'RCP
*S*       (24'/1800'= 0.15 slp) Add to basin 302 at pond 6, (#8)
ROUTE MCUNGE         301.20   2    3        .06800       64.25       5.767      1.59027    1.750     1.476 CCODE =       .2
*S*    6- COMPUTE TP FOR BASIN 302 (LET tp= 0.133 MIN)                  ***
*S*    7- COMPUTE HYD FOR BASIN 302 (assume replat to 4 DU/Ac, D=42%, use 45%)
*S*       Historical flow (100% A)= 57.95CFS
COMPUTE NM HYD       302.00   -     1        .05800      119.01       4.693      1.51708    1.500     3.206 PER IMP=   45.00
*S*    8- ADD HYDROGRAPHS 301.2 (ROUTED THROUGH 302) AND 302 - INFLOW TO POND 6
ADD HYD              302.10  1& 3   2        .12600      164.30      10.460      1.55657    1.500     2.037
*S*    9- ROUTE HYDROGRAPH 302.1 through POND 6 (0.2/0.4AC surf/bottom, 1.5AF st
*S*      Historical flow- 100% A (Basin 301= 74.42)+(Basin 302= 57.95)= 132.37CF
*S*      discharge through 48" RCP w/ 45" orifice plate
ROUTE RESERVOIR   POND.302.2   2    1        .12600      117.19      10.460      1.55658    1.700     1.453 AC-FT=     1.254
*S*   10- Route outflow from POND 6 (BASIN 301 & 302) through
*S*       48"x 2300'RCP (50/2300= 2.2% slp) through Basin 214 TO POND 8
ROUTE MCUNGE         302.30   1    2        .12600      117.10      10.462      1.55684    1.750     1.452 CCODE =       .2
*S*   76- COMPUTE TP FOR BASIN 214 (Let tp= 0.133= Min.)                ***
*S*   77- COMPUTE HYD FOR BASIN 214
COMPUTE NM HYD       214.00   -     1        .08600      176.58       6.958      1.51708    1.500     3.208 PER IMP=   45.00
*S*   78- ADD HYDROGRAPHS 302.3 AND 214
ADD HYD              214.10  2& 1   3        .21200      256.75      17.420      1.54071    1.500     1.892
*S*   79- Route HYDROGRAPH 214.1 through POND 8 (1.7/2.2AC surf/btm, 11.3AF stor
ROUTE RESERVOIR   POND.214.2   3    2        .21200      106.29      17.420      1.54071    2.150      .783 AC-FT=     6.213
*S*   11- COMPUTE TP FOR BASIN P-303 (let TP= 0.133 hrs= min)           ***
*S*   12- COMPUTE HYD FOR BASIN 303 (assume replat to 4 DU/Ac, D=42%, use 45%)
*S*       BASIN 303 Historical flow (100% A)= 75.29CFS
COMPUTE NM HYD       303.00   -     1        .06700      137.50       5.421      1.51708    1.500     3.207 PER IMP=   45.00
*S*   13- ROUTE HYDROGRAPH 303 THROUGH POND 9 (0.3/0.52AC surface/bottom, 2.11AF
*S*       303 Hist. flow= 75.29CFS, discharge through 36" RCP w/ 34" orifice pla
ROUTE RESERVOIR   POND.303.1   1    2        .06700       62.82       5.421      1.51708    1.700     1.465 AC-FT=     1.536
*S*    14- Route outflow from POND 9 (BASIN 303.1) through 36"x 1300'RCP
ROUTE MCUNGE         303.20   2    3        .06700       62.82       5.422      1.51721    1.700     1.465 CCODE =       .2
*S*   81- COMPUTE TP FOR BASIN P-215 (Let tp= 0.133 Min.)               ***
*S*   82- COMPUTE HYD FOR BASIN P-215
COMPUTE NM HYD       215.00   -     1        .05400      110.81       4.369      1.51708    1.500     3.206 PER IMP=   45.00
*S*   83- ADD HYDROGRAPHS 303.2 AND 215
ADD HYD              215.10  1& 3   2        .12100      156.91       9.791      1.51715    1.500     2.026
*S*   85- Route HYDROGRAPH 215.1 through POND 10 (1.0/0.7AC surf/btm, 4.65AF sto
ROUTE RESERVOIR   POND.215.2   2    1        .12100       14.22       9.789      1.51696    2.500      .184 AC-FT=     6.835
*S*    15- COMPUTE TP FOR OFFSITE BASIN 304 Let TP= 0.133 hrs= min.)     ***
*S*   16- Compute HYD for BASIN 304 (ex.platting 2.33+/- DU/Acre => 35%D, use 40
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
S	BASIN 304 @ 100% A: Historical flow area= 0.05 sq mi, flow= 41.24cfs									
COMPUTE NM HYD	304.00	-	1	.10800	217.09	8.321	1.44459	1.500	3.141	PER IMP= 40.00
S	17- Route HYDROGRAPH 304 through POND 7 (H=4.0', 0.40/0.25AC surf/bottom,									
S	cap.). 304 historical: 100% A;area= 0.05 sq mi; flow= 41.24cfs;									
S	discharge through 28" orifice plate into 30' RCP									
ROUTE RESERVOIR	POND.304.1	1	2	.10800	41.96	8.321	1.44459	1.950	.607	AC-FT= 4.223
S	23- COMPUTE TP FOR BASIN P-203 (let TP= 0.133= Min.)					***				
S	24- COMPUTE HYD FOR BASIN P-203 (2.5 DU/acre, use D=45)									
COMPUTE NM HYD	203.00	-	2	.00200	4.12	.162	1.51708	1.500	3.218	PER IMP= 45.00
S	31- COMPUTE TP FOR BASIN P-204 (Let tp= 0.133= Min.)					***				
COMPUTE NM HYD	204.00	-	1	.00800	16.43	.647	1.51708	1.500	3.209	PER IMP= 45.00
S	84- ADD HYDROGRAPHS 203 AND 204									
ADD HYD	204.20	1& 2	5	.01000	20.55	.809	1.51703	1.500	3.211	
S	33- Route HYDROGRAPH 204.2 through BASIN 208 IN 24'X570 LF PIPE									
ROUTE MCUNGE	204.30	5	10	.01000	20.45	.809	1.51741	1.500	3.196	CCODE = .2
S	34- COMPUTE TP FOR BASIN P-205 (Let tp= 0.133= Min.)					***				
S	35- COMPUTE HYD FOR BASIN P-205 (assume 4 DU/Acre=> 42%D, use 45%D)									
COMPUTE NM HYD	205.00	-	1	.01400	28.70	1.133	1.51708	1.500	3.203	PER IMP= 45.00
S	36- ROUTE HYDROGRAPH 205 THROUGH PIPE TO CONFLUENCE W/ BASIN 208									
ROUTE MCUNGE	205.10	1	2	.01400	28.31	1.133	1.51746	1.500	3.160	CCODE = .2
S	45- COMPUTE TP FOR BASIN P-208 (Let tp= 0.133= Min.)					***				
COMPUTE NM HYD	208.00	-	1	.01300	21.22	.725	1.04601	1.500	2.550	PER IMP= 20.00
S	47- ADD HYDROGRAPHS 205.1 and 208									
ADD HYD	208.10	1& 2	3	.02700	49.53	1.858	1.29043	1.500	2.866	
S	48- ADD HYDROGRAPHS 204.3 AND 208.1									
ADD HYD	208.20	3&10	1	.03700	69.98	2.667	1.35176	1.500	2.955	
*S*51-	ROUTE ADDED FLOWS AT HYDROGRAPH 208.2 through PIPE TO POND 4									
ROUTE MCUNGE	208.30	1	5	.03700	68.50	2.668	1.35209	1.500	2.893	CCODE = .2
S	37- COMPUTE TP FOR BASIN P-206 (Let tp= 0.133= Min.)					***				
S	38- COMPUTE HYD FOR BASIN P-206 (assume 4 DU/Acre=> 42%D, use 45%D)									
COMPUTE NM HYD	206.00	-	1	.00700	14.36	.566	1.51708	1.500	3.205	PER IMP= 45.00
S	59- COMPUTE TP FOR BASIN P-210 (let tp=0.133= Min.)					***				
S	60- COMPUTE HYD FOR BASIN P-210 (3.0 DU/acre=> 35%D, use 40%D)									
COMPUTE NM HYD	210.00	-	2	.00400	8.04	.308	1.44459	1.500	3.141	PER IMP= 40.00
S	- ADD HYDROGRAPHS 206 AND 210									
ADD HYD	210.10	1& 2	3	.01100	22.40	.875	1.49067	1.500	3.182	
S	62- Compute TP for BASIN P-211 (let tp=0.133= Min.)					***				
S	63- COMPUTE HYD FOR BASIN P-211 (3.7 DU/acre=> 40%D, use 45%D)									
COMPUTE NM HYD	211.00	-	1	.01000	20.53	.809	1.51708	1.500	3.208	PER IMP= 45.00
S	64- ADD HYDROGRAPHS 210.1 AND 211									
ADD HYD	211.10	1& 3	2	.02100	42.93	1.684	1.50323	1.500	3.194	
S	41- COMPUTE TP FOR BASIN P-207 (Let tp= 0.133= Min.)					***				
S	42- COMPUTE HYD FOR BASIN P-207 (actual 3.7DU/acre, assume 4 DU/Acre=>									
COMPUTE NM HYD	207.00	-	1	.00400	8.21	.324	1.51708	1.500	3.208	PER IMP= 45.00
S	- ADD HYDROGRAPHS 211.1 AND 207									
ADD HYD	207.10	1& 2	3	.02500	51.14	2.007	1.50544	1.500	3.196	
S	52- Compute TP for BASIN P-209 (Let tp=0.133= Min.)					***				
S	53- Compute HYD for BASIN 209 (3.86du/acre=> 41%D, use 45%D)									
COMPUTE NM HYD	209.00	-	1	.00600	12.33	.485	1.51708	1.500	3.210	PER IMP= 45.00
S	- ADD HYDROGRAPHS 207.1 AND 209									
ADD HYD	209.10	1& 3	2	.03100	63.47	2.493	1.50768	1.500	3.199	
S	66- COMPUTE TP FOR BASIN P-212 (Let TP=0.133= Min.)					***				

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
S	67- Computing HYD for BASIN P-212 (2.5 DU/acre=> 30%D, use 35%D)									
COMPUTE NM HYD	212.00	-	1	.00500	9.81	.366	1.37175	1.500	3.066	PER IMP= 35.00
S	68- ADD HYDROGRAPHS 209.1 AND 212									
ADD HYD	212.10	2& 1	3	.03600	73.28	2.858	1.48879	1.500	3.181	
S	69 ROUTE HYDROGRAPH 212.1 down Kimmick in 48"x 175' RCP to POND 4									
ROUTE MCUNGE	212.20	3	2	.03600	73.28	2.858	1.48879	1.500	3.181	CCODE = .0
S	70- Add HYDROGRAPHS 212.2 TO 208.3 (At POND 4)									
ADD HYD	212.30	2& 5	6	.07300	141.78	5.527	1.41950	1.500	3.035	
S	19- COMPUTE TP FOR BASIN 201 (let TP= 0.133= Min.)					***				
S	20- COMPUTE HYD FOR BASIN P-201 (assume 4 DU/Acre=> 42%D, use 45%D)									
COMPUTE NM HYD	201.00	-	1	.03500	71.82	2.832	1.51708	1.500	3.206	PER IMP= 45.00
S	21- Route HYDROGRAPH 201 through POND 1 (0.5/0.25AC surf/btm, 1.65AF stor.									
S	discharge 15.21cfs through 15" orifice plate route to POND 2									
ROUTE RESERVOIR	POND.201.1	1	2	.03500	13.29	2.832	1.51707	2.000	.593	AC-FT= 1.474
S	22- Route outflow from POND 1 (BASIN 201) in 24"PIPE through BASIN 202 TO									
s	NEW POND #2 IN BASIN 202									
ROUTE MCUNGE	201.20	2	3	.03500	13.28	2.830	1.51601	2.050	.593	CCODE = .2
S	27- COMPUTE TP FOR BASIN P-202 (set tp= 0.133= Min.)					***				
COMPUTE NM HYD	202.00	-	1	.05500	112.86	4.450	1.51708	1.500	3.206	PER IMP= 45.00
S	28A- Add HYDROGRAPHS 201.2 and 202									
ADD HYD	202.10	1& 3	2	.09000	120.52	7.280	1.51665	1.500	2.092	
S	29- Route HYDROGRAPH 202.1 Through POND 2 (0.77/0.5AC surf/btm, 3.50AF st									
S	discharge 15.21cfs through 15" orifice plate into Rosa Parks System									
ROUTE RESERVOIR	POND.202.2	2	3	.09000	14.73	7.280	1.51665	2.550	.256	AC-FT= 3.513
S	56A- Compute TP for BASIN 213 (Let tp=0.133= Min.)					***				
S	56B- COMPUTE HYD FOR BASIN 213 (3.86du/acre=> 41%D, use 45%D)									
COMPUTE NM HYD	213.00	-	1	.06300	129.28	5.097	1.51708	1.500	3.206	PER IMP= 45.00
S	56C- Add HYDROGRAPH 202.2 (outflow from POND 2) and 213									
ADD HYD	213.10	1& 3	2	.15300	138.12	12.377	1.51682	1.500	1.410	
S	56D- Add HYDROGRAPHS 212.3 and 213.1 (INFLOW TO POND 4)									
ADD HYD	213.20	2& 6	1	.22600	279.89	17.904	1.48538	1.500	1.935	
S	57- Route BASIN 213.1 through POND 4									
ROUTE RESERVOIR	POND.213.3	1	2	.22600	86.63	17.904	1.48538	1.850	.599	AC-FT= 4.249
FINISH										

APPENDIX B

Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Basil CT
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	015000	ft/ft
Discharg	11.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev	0.32	ft
Elevation Range	0.00 to 0.67	
Flow Area	4.3	ft²
Wetted Perimeter	30.662	ft
Top Width	30.158	ft
Actual Depth	0.32	ft
Critical Elevation	0.34	ft
Critical Slope	0.009909	ft/ft
Velocity	2.57	ft/s
Velocity Head	0.10	ft
Specific Energy	0.42	ft
Froude Number	1.21	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

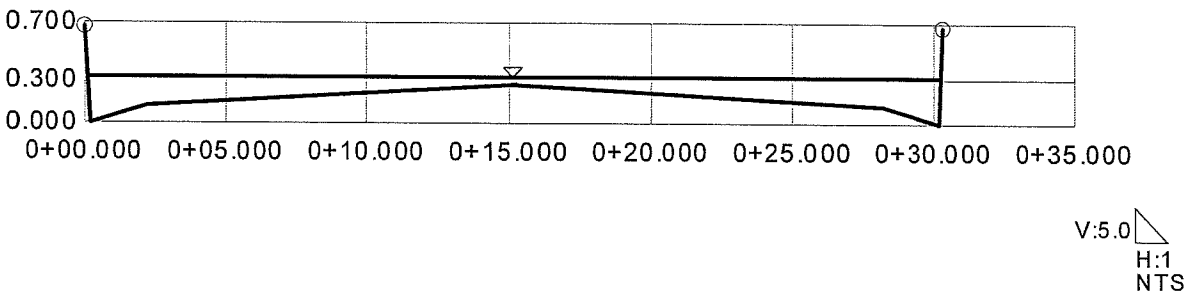
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Basil CT
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.015000	ft/ft
Water Surface Elev	0.32	ft
Elevation Range	.00 to 0.67	
Discharge	11.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Betony Ct
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	020000	ft/ft
Discharg	10.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev	0.30	ft
Elevation Range	0.00 to 0.67	
Flow Area	3.7	ft²
Wetted Perimeter	30.623	ft
Top Width	30.148	ft
Actual Depth	0.30	ft
Critical Elevation	0.33	ft
Critical Slope	0.010114	ft/ft
Velocity	2.70	ft/s
Velocity Head	0.11	ft
Specific Energy	0.41	ft
Froude Number	1.36	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

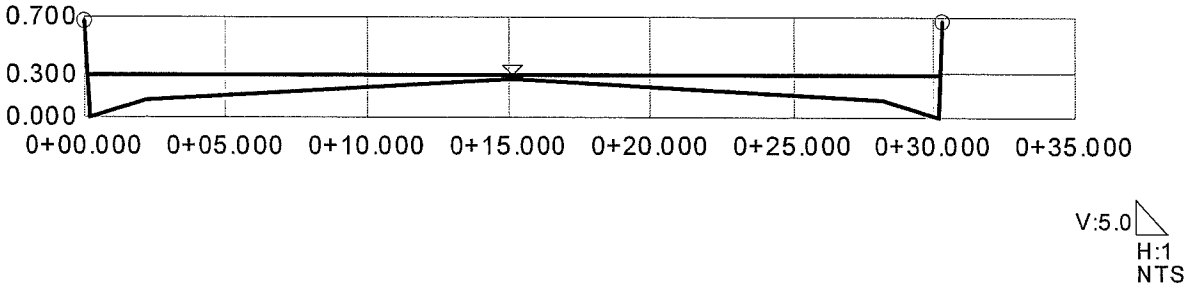
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Betony Ct
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.020000	ft/ft
Water Surface Elev	0.30	ft
Elevation Range	.00 to 0.67	
Discharge	10.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Redroot/Buckth
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	056500	ft/ft
Discharg	10.00	cfs

Options	
Current Roughness Meth	oved Lotter's Method
Open Channel Weighting	oved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev.	0.26	ft
Elevation Range	0.00 to 0.67	
Flow Area	2.7	ft²
Wetted Perimeter	30.555	ft
Top Width	30.132	ft
Actual Depth	0.26	ft
Critical Elevation	0.33	ft
Critical Slope	0.010114	ft/ft
Velocity	3.69	ft/s
Velocity Head	0.21	ft
Specific Energy	0.48	ft
Froude Number	2.17	
Flow Type	Supercritical	

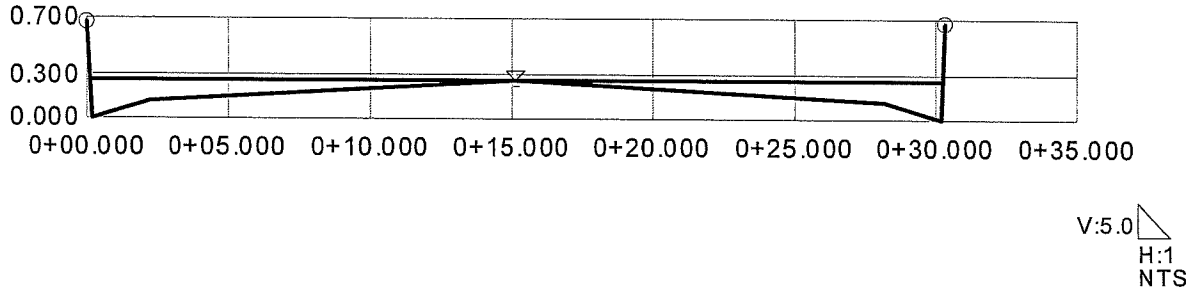
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Redroot/Bucktl
Flow Element	Irregular Chani
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.056500	ft/ft
Water Surface Elev	0.26	ft
Elevation Range	.00 to 0.67	
Discharge	10.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Redroot Rd
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	005000	ft/ft
Discharg	16.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev.	0.42	ft
Elevation Range	.00 to 0.67	
Flow Area	7.5	ft²
Wetted Perimeter	30.880	ft
Top Width	30.211	ft
Actual Depth	0.42	ft
Critical Elevation	0.38	ft
Critical Slope	0.009147	ft/ft
Velocity	2.14	ft/s
Velocity Head	0.07	ft
Specific Energy	0.49	ft
Froude Number	0.76	
Flow Type	Subcritical	

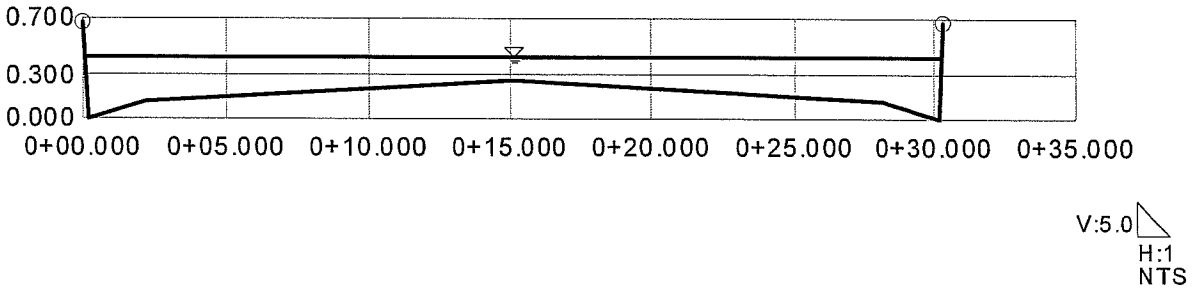
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Redroot Rd
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.005000	ft/ft
Water Surface Elev	0.42	ft
Elevation Range	.00 to 0.67	
Discharge	16.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Buckthorn Pl
Flow Element	Irregular Chani
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	007000	ft/ft
Discharg	14.00	cfs

Options	
Current Roughness Metho	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev.	0.38	ft
Elevation Range	.00 to 0.67	
Flow Area	6.2	ft²
Wetted Perimeter	30.795	ft
Top Width	30.190	ft
Actual Depth	0.38	ft
Critical Elevation	0.36	ft
Critical Slope	0.009411	ft/ft
Velocity	2.25	ft/s
Velocity Head	0.08	ft
Specific Energy	0.46	ft
Froude Number	0.87	
Flow Type	Subcritical	

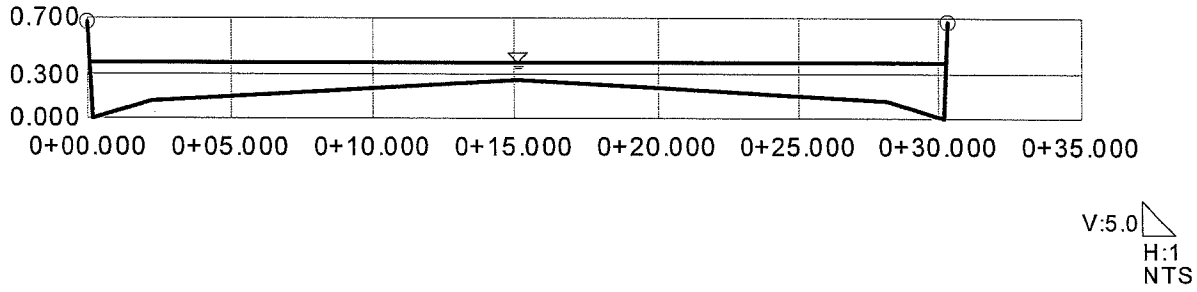
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Buckthorn Pl
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.007000	ft/ft
Water Surface Elev	0.38	ft
Elevation Range	.00 to 0.67	
Discharge	14.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Buckthorn/Burc
Flow Element	Irregular Chani
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	017900	ft/ft
Dischargi	12.00	cfs

Options	
Current Roughness Metho	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev	0.32	ft
Elevation Range	0.00 to 0.67	
Flow Area	4.3	ft²
Wetted Perimeter	30.662	ft
Top Width	30.158	ft
Actual Depth	0.32	ft
Critical Elevation	0.35	ft
Critical Slope	0.009726	ft/ft
Velocity	2.81	ft/s
Velocity Head	0.12	ft
Specific Energy	0.44	ft
Froude Number	1.32	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

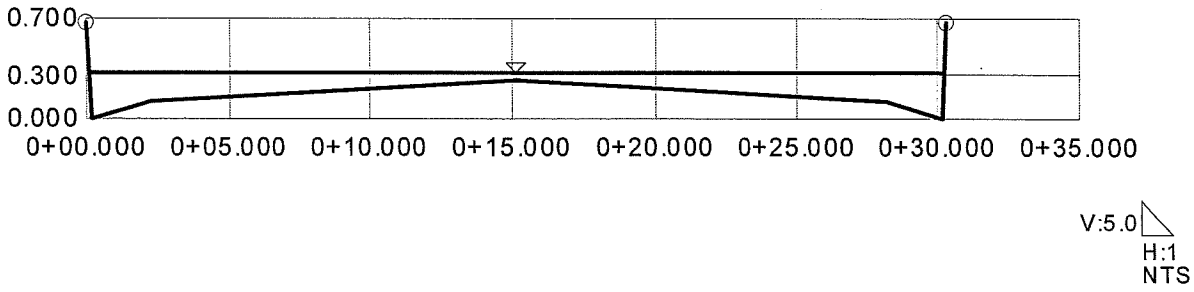
Natural Channel Points

Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Buckthorn/Bur
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.017900	ft/ft
Water Surface Elev	0.32	ft
Elevation Range	.00 to 0.67	
Discharge	12.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Goldenseal/Bur
Flow Element	Irregular Chann
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Slope	024000	ft/ft
Discharg	26.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev	0.38	ft
Elevation Range	0.00 to 0.67	
Flow Area	6.2	ft²
Wetted Perimeter	30.796	ft
Top Width	30.190	ft
Actual Depth	0.38	ft
Critical Elevation	0.46	ft
Critical Slope	0.008257	ft/ft
Velocity	4.17	ft/s
Velocity Head	0.27	ft
Specific Energy	0.65	ft
Froude Number	1.62	
Flow Type	Supercritical	

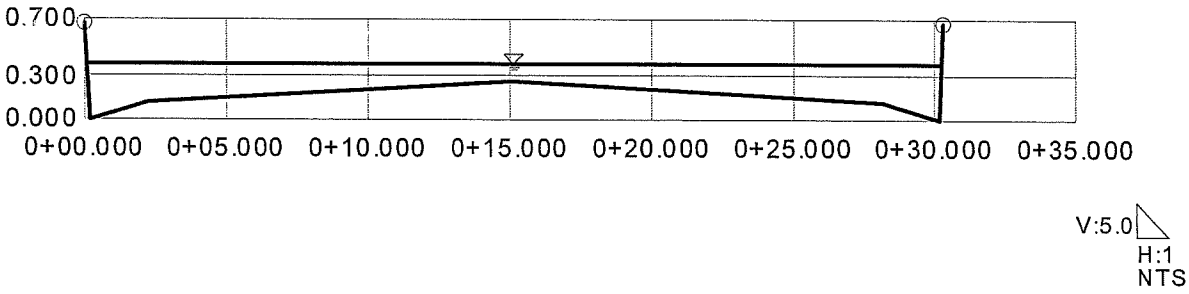
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Goldenseal/Bur
Flow Element	Irregular Chann
Method	Manning's Form
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.024000	ft/ft
Water Surface Elev	0.38	ft
Elevation Range	.00 to 0.67	
Discharge	26.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Burdock Pl
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	034000	ft/ft
Discharg	5.00	cfs

Options	
Current Roughness Metho	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev	0.24	ft
Elevation Range	0.00 to 0.67	
Flow Area	2.0	ft²
Wetted Perimeter	26.377	ft
Top Width	25.996	ft
Actual Depth	0.24	ft
Critical Elevation	0.27	ft
Critical Slope	0.011752	ft/ft
Velocity	2.55	ft/s
Velocity Head	0.10	ft
Specific Energy	0.34	ft
Froude Number	1.64	
Flow Type	Supercritical	

Calculation Messages:
Flow is divided.

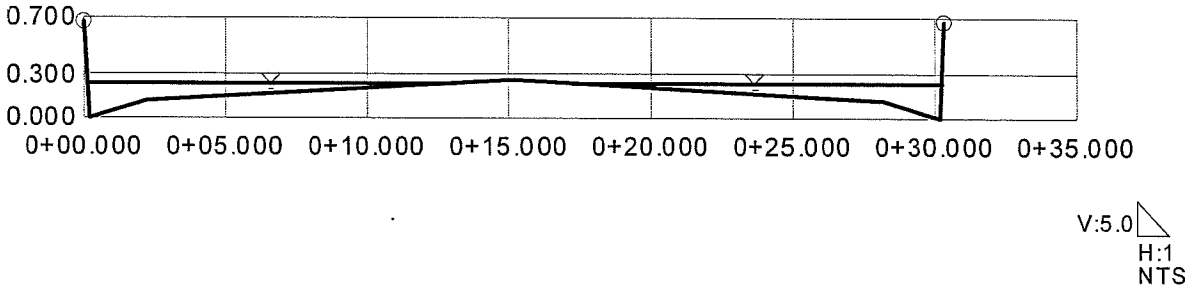
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Burdock Pl
Flow Element	Irregular Chanı
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.034000	ft/ft
Water Surface Elev	0.24	ft
Elevation Range	.00 to 0.67	
Discharge	5.00	cfs



Worksheet
Worksheet for Irregular Channel

Project Description	
Worksheet	Firethorn Dr
Flow Element	Irregular Chan
Method	Manning's For
Solve For	Channel Depth

Input Data		
Slope	013200	ft/ft
Discharg	2.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.019	
Water Surface Elev	0.21	ft
Elevation Range	.00 to 0.67	
Flow Area	1.4	ft²
Wetted Perimeter	21.677	ft
Top Width	21.333	ft
Actual Depth	0.21	ft
Critical Elevation	0.21	ft
Critical Slope	0.013365	ft/ft
Velocity	1.44	ft/s
Velocity Head	0.03	ft
Specific Energy	0.25	ft
Froude Number	0.99	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

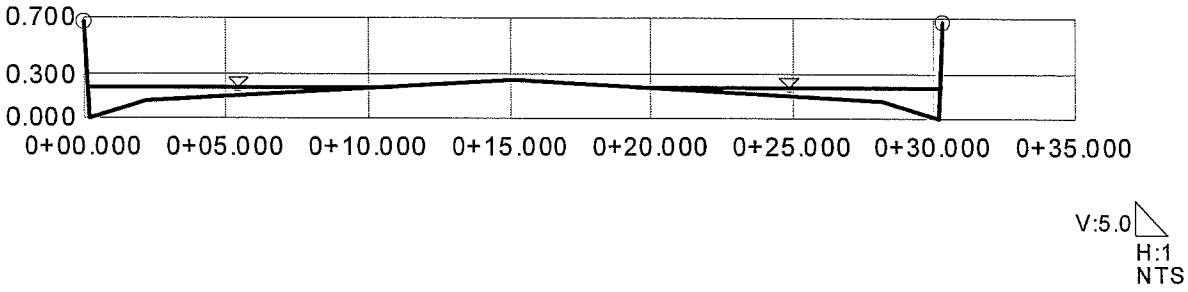
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.000	0+30.334	0.019

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.000	0.670
0+00.167	0.000
0+02.167	0.125
0+15.167	0.260
0+28.167	0.125
0+30.167	0.000
0+30.334	0.670

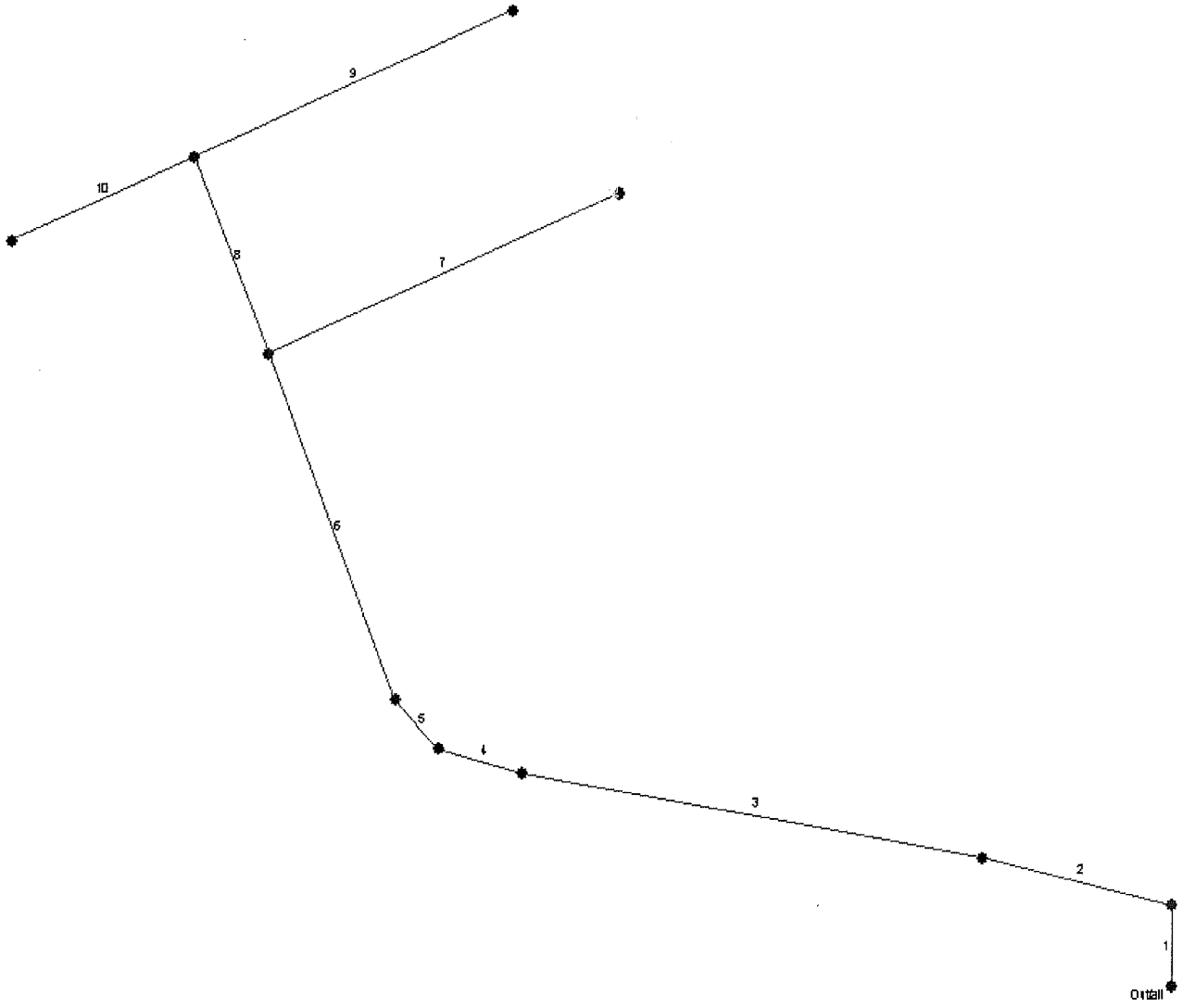
Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Firethorn Dr
Flow Element	Irregular Chani
Method	Manning's For
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.019	
Slope	0.013200	ft/ft
Water Surface Elev	0.21	ft
Elevation Range	.00 to 0.67	
Discharge	2.00	cfs



Hydraflow Plan View



LA CUENTISTA UNIT II - SD	No. Lines: 10	01-17-2007

Hydraulic Grade Line Computations

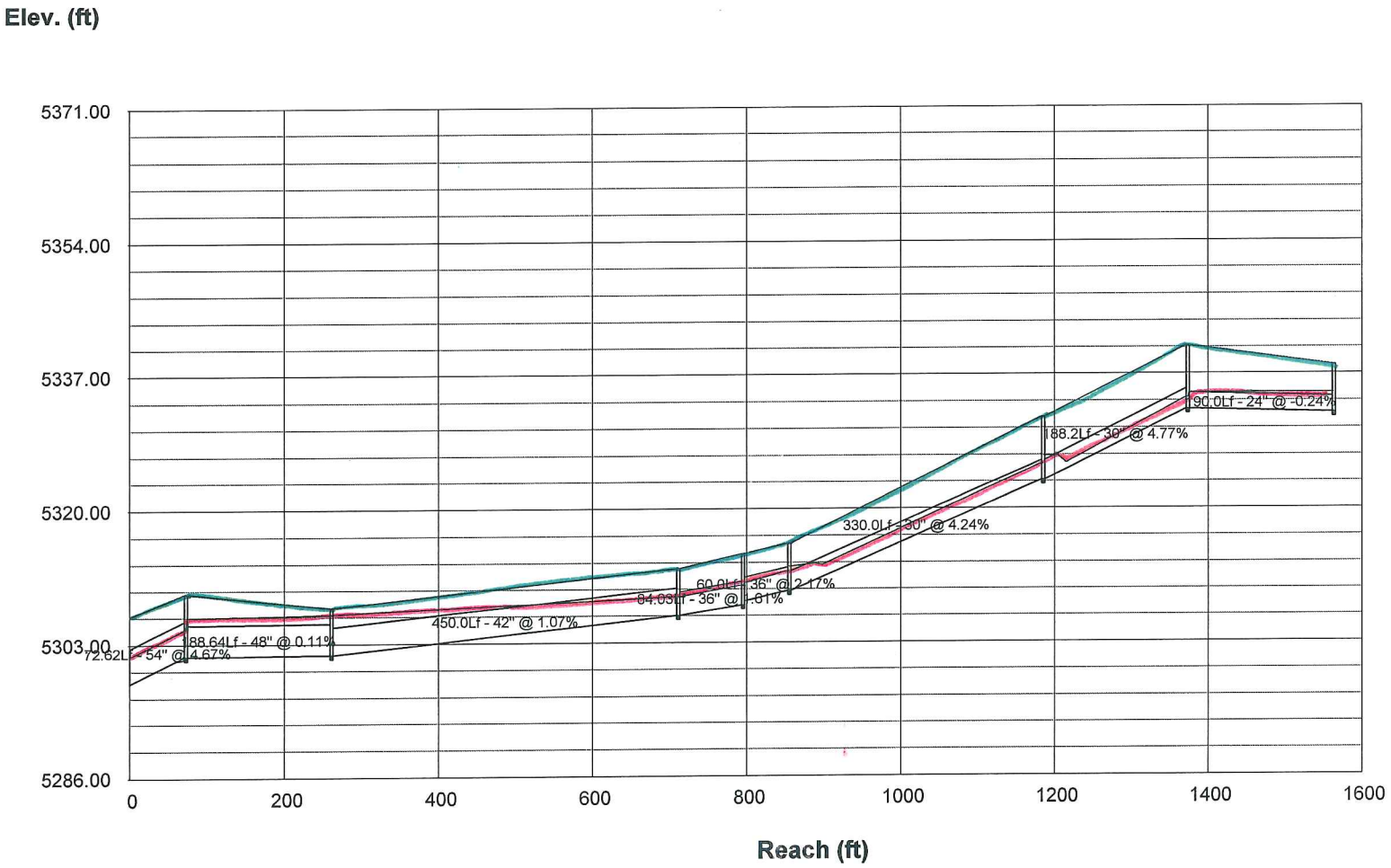
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	54	142.0	5298.00	5301.42	3.42	12.96	10.95	1.87	5303.28	0.609	72.6	5301.39	5304.81	3.42**	12.96	10.95	1.87	5306.67	0.609	0.609	n/a	0.98	1.83
2	48	63.00	5301.39	5306.28	4.00	12.56	5.01	0.39	5306.67	0.192	189	5301.59	5306.65	4.00	12.57	5.01	0.39	5307.04	0.192	0.192	0.363	0.15	0.06
3	42	63.00	5301.59	5306.71	3.50	9.62	6.55	0.67	5307.37	0.392	450	5306.42	5308.85	2.43**	7.13	8.83	1.21	5310.06	0.571	0.482	n/a	0.15	0.18
4	36	63.00	5306.42	5308.85	2.43	6.14	10.27	1.64	5310.49	0.911	84.0	5307.77	5310.30	2.53**	6.36	9.91	1.53	5311.83	0.850	0.881	n/a	0.57	n/a
5	36	63.00	5308.27	5310.59	2.32	5.87	10.74	1.79	5312.38	1.002	60.0	5309.57	5312.10	2.53**	6.36	9.91	1.53	5313.63	0.850	0.926	n/a	0.43	n/a
6	30	39.00	5309.57	5312.64	2.50	4.91	7.95	0.98	5313.63	0.905	330	5323.56	5325.65	2.09**	4.38	8.91	1.23	5326.88	0.876	0.890	n/a	1.00	1.23
7	24	10.00	5323.56	5326.72	2.00	3.14	3.18	0.16	5326.88	0.196	365	5324.17	5327.44	2.00	3.14	3.18	0.16	5327.59	0.195	0.196	0.713	1.00	0.16
8	30	18.00	5323.56	5326.67	2.50	4.91	3.67	0.21	5326.88	0.193	188	5332.53	5333.95	1.42**	2.87	6.27	0.61	5334.56	0.509	0.351	n/a	1.00	0.61
9	24	16.00	5332.53	5334.53	2.00*	3.14	5.09	0.40	5334.93	0.501	332	5333.00	5336.19	2.00	3.14	5.09	0.40	5336.60	0.500	0.501	1.663	1.00	0.40
10	24	2.00	5332.53	5334.55	2.00	3.14	0.64	0.01	5334.56	0.008	190	5332.07	5334.57	2.00	3.14	0.64	0.01	5334.57	0.008	0.008	0.015	1.00	0.01

LA CUENTISTA UNIT II - SD | Number of lines: 10 | Run Date: 01-17-2007

Notes: * Normal depth assumed.; ** Critical depth.; j-Line contains hyd. jump.

Storm Sewer Profile

Proj. file: ONSITE LA CUENTISTA II-SD_W_UNIT II.stm



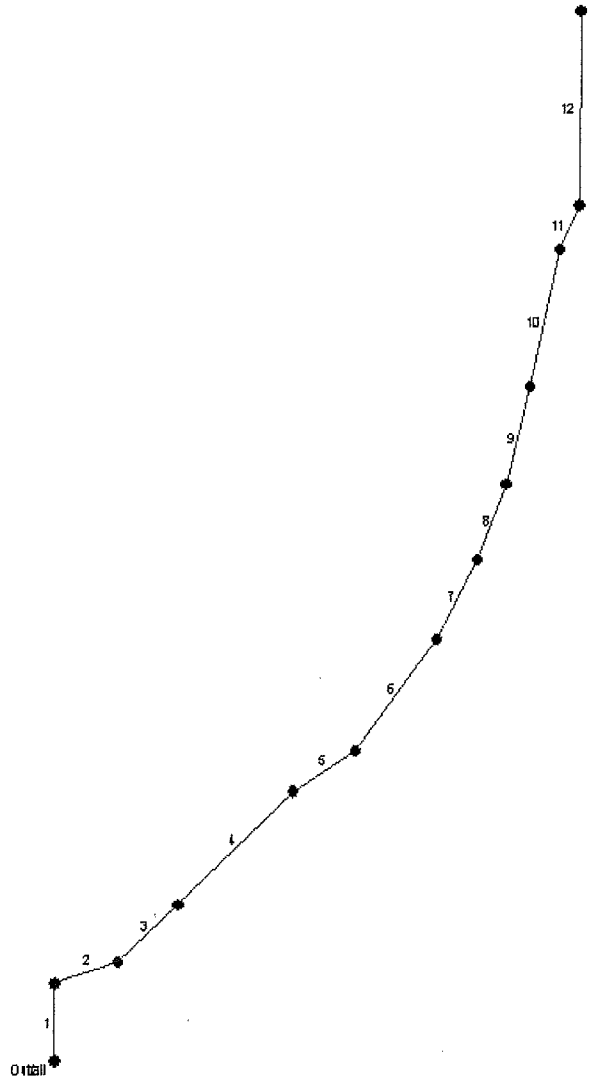
Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.
1		142.0	54 c	72.6	5298.00	5301.39	4.668	5301.42	5304.81	1.83	5304.81	End
2		63.00	48 c	188.6	5301.39	5301.59	0.106	5306.28*	5306.65*	0.06	5306.71	1
3		63.00	42 c	450.0	5301.59	5306.42	1.073	5306.71	5308.85	0.18	5308.85	2
4		63.00	36 c	84.0	5306.42	5307.77	1.607	5308.85	5310.30	n/a	5310.30	3
5		63.00	36 c	60.0	5308.27	5309.57	2.166	5310.59	5312.10	n/a	5312.10	4
6		39.00	30 c	330.0	5309.57	5323.56	4.239	5312.64	5325.65	n/a	5325.65 j	5
7		10.00	24 c	364.6	5323.56	5324.17	0.167	5326.72*	5327.44*	0.16	5327.59	6
8		18.00	30 c	188.2	5323.56	5332.53	4.766	5326.67	5333.95	n/a	5333.95 j	6
9		16.00	24 c	332.2	5332.53	5333.00	0.142	5334.53*	5336.19*	0.40	5336.60	8
10		2.00	24 c	190.0	5332.53	5332.07	-0.242	5334.55*	5334.57*	0.01	5334.57	8

LA CUENTISTA UNIT II - SD | Number of lines: 10 | Run Date: 01-17-2007

NOTES: c = cir; e = ellip; b = box; Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Hydraflow Plan View



LA CUENTISTA II- SD BURDOCK	No. Lines: 12	01-17-2007

Hydraulic Grade Line Computations

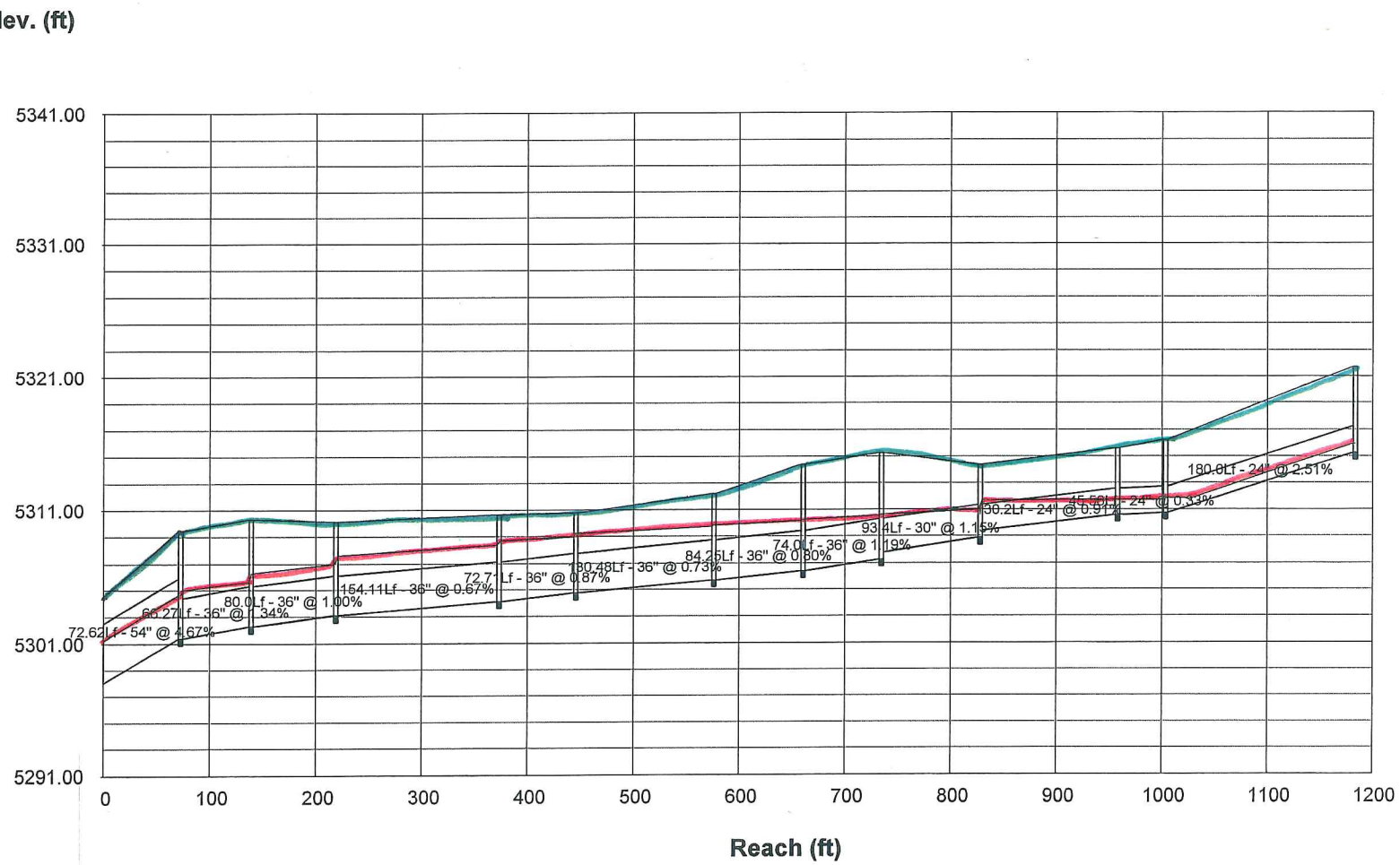
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	54	125.0	5298.00	5301.21	3.21	12.13	10.31	1.65	5302.86	0.550	72.6	5301.39	5304.60	3.21**	12.13	10.31	1.65	5306.25	0.550	0.550	n/a	0.97	n/a
2	36	63.00	5301.39	5305.01	3.00	7.07	8.91	1.24	5306.25	0.893	66.3	5302.28	5305.61	3.00	7.07	8.91	1.24	5306.84	0.892	0.893	0.591	0.48	0.59
3	36	61.00	5302.28	5306.28	3.00	7.07	8.63	1.16	5307.43	0.837	80.0	5303.08	5306.95	3.00	7.07	8.63	1.16	5308.10	0.837	0.837	0.669	0.15	0.17
4	36	47.00	5303.08	5307.59	3.00	7.07	6.65	0.69	5308.28	0.497	154	5304.12	5308.36	3.00	7.07	6.65	0.69	5309.04	0.497	0.497	0.766	0.24	0.16
5	36	42.00	5304.12	5308.66	3.00	7.07	5.94	0.55	5309.21	0.397	72.7	5304.75	5308.95	3.00	7.07	5.94	0.55	5309.50	0.397	0.397	0.288	0.42	0.23
6	36	42.00	5304.75	5309.18	3.00	7.07	5.94	0.55	5309.73	0.397	130	5305.70	5309.70	3.00	7.07	5.94	0.55	5310.24	0.397	0.397	0.518	0.19	0.10
7	36	42.00	5305.70	5309.80	3.00	7.07	5.94	0.55	5310.35	0.397	84.3	5306.37	5310.13	3.00	7.07	5.94	0.55	5310.68	0.397	0.397	0.334	0.15	0.08
8	36	42.00	5306.37	5310.22	3.00	7.07	5.94	0.55	5310.77	0.397	74.0	5307.25	5310.51	3.00	7.07	5.94	0.55	5311.06	0.397	0.397	0.294	0.17	0.09
9	30	30.00	5307.77	5310.60	2.50	4.91	6.11	0.58	5311.19	0.535	93.4	5308.84	5310.96	2.12	4.44	6.75	0.71	5311.67	0.505	0.520	0.486	0.15	0.11
10	24	4.00	5309.37	5311.70	2.00	3.14	1.27	0.03	5311.72	0.031	130	5310.56	5311.72	1.16	1.90	2.11	0.07	5311.79	0.076	0.054	0.070	0.26	0.02
11	24	4.00	5310.56	5311.74	1.18	1.93	2.07	0.07	5311.81	0.073	45.6	5310.71	5311.76	1.05	1.67	2.40	0.09	5311.85	0.107	0.090	0.041	0.48	0.04
12	24	4.00	5310.71	5311.87	1.16	1.88	2.13	0.07	5311.94	0.078	180	5315.22	5315.93	0.71**	1.00	4.02	0.25	5316.18	0.433	0.255	n/a	1.00	0.25

LA CUENTISTA II- SD BURDOCK | Number of lines: 12 | Run Date: 01-17-2007

Notes: ; ** Critical depth.; j-Line contains hyd. jump.

Storm Sewer Profile

Proj. file: ONSITE LA CUENTISTA II-SD_E_UNIT II.stm



Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.
1		125.0	54 c	72.6	5298.00	5301.39	4.668	5301.21	5304.60	n/a	5304.60	End
2		63.00	36 c	66.3	5301.39	5302.28	1.342	5305.01*	5305.61*	0.59	5306.20	1
3		61.00	36 c	80.0	5302.28	5303.08	1.000	5306.28*	5306.95*	0.17	5307.12	2
4		47.00	36 c	154.1	5303.08	5304.12	0.675	5307.59*	5308.36*	0.16	5308.52	3
5		42.00	36 c	72.7	5304.12	5304.75	0.866	5308.66*	5308.95*	0.23	5309.18	4
6		42.00	36 c	130.5	5304.75	5305.70	0.728	5309.18*	5309.70*	0.10	5309.80	5
7		42.00	36 c	84.3	5305.70	5306.37	0.795	5309.80*	5310.13*	0.08	5310.22	6
8		42.00	36 c	74.0	5306.37	5307.25	1.189	5310.22*	5310.51*	0.09	5310.60	7
9		30.00	30 c	93.4	5307.77	5308.84	1.145	5310.60	5310.96	0.11	5311.07	8
10		4.00	24 c	130.2	5309.37	5310.56	0.914	5311.70	5311.72	0.02	5311.74	9
11		4.00	24 c	45.6	5310.56	5310.71	0.329	5311.74	5311.76	0.04	5311.80	10
12		4.00	24 c	180.0	5310.71	5315.22	2.506	5311.87	5315.93	n/a	5315.93 j	11

LA CUENTISTA II- SD BURDOCK | Number of lines: 12 | Run Date: 01-17-2007

NOTES: c = cir; e = ellip; b = box; Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

LA CUENTISTA SUBDIVISION
TRACT B

VOLCANO CLIFFS
UNIT 26

LA CUENTISTA SUBDIVISION
UNIT 1

VOLCANO CLIFFS
UNIT 22

LA CUENTISTA SUBDIVISION
TRACT D

LA CUENTISTA SUBDIVISION
TRACT E

ROSA PARKS RD.

A= 0.60 ac± 1.94 cfs

A= 3.35 ac±
10.82 cfs

A= 2.98 ac±
9.63 cfs

A= 1.38 ac± 4.46 cfs

A= 4.21 ac±
13.60 cfs

A= 7.90 ac±
25.53 cfs

A= 2.97 ac±
9.60 cfs

A= 3.73 ac±
12.0 cfs

A= 0.51 ac± 1.65 cfs

A= 4.85 ac±
15.67 cfs

A= 2.18 ac±
7.00 cfs

A= 1.40 ac±
5.0 cfs

A= 1.77 ac±
5.72 cfs

BASIL CT

BETONY CT

GOLDENSEAL PL

RED CLOVER ST

BUCKTHORN PL

BURDOCK PL

JIMMICK DR

REDROOT RD

PELTON DR

LEGEND

SUB-BASIN BOUNDARY

N

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

WILSON & COMPANY
4900 LANG AVE NE
ALBUQUERQUE, NEW MEXICO
87109
(505) 348-4000

LA CUENTISTA SUBDIVISION – UNIT II

BASIN 213
SUB-BASIN BOUNDARY MAP FOR INLET DESIGN

DESIGN	KIS	WCEA NO. 0660004701	DATE JAN 2007
DRAWN	OR	PROJECT NO.	SHEET NO. 1 OF 1
CHECK	DSA		

T:\Projects\0660004701\CADD\EXHIBITS\6604701EX06.dwg\1-18-07\KIS