CITY OF ALBUQUERQUE

October 23, 2006

Mr. Mark Goodwin, PE
MARK GOODWIN & ASSOCIATES
P.O. Box 90606
Albuquerque, NM 87199

RE: SILVER LEAF SUBDIVISION (J-20/D17)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 11/09/2005
Engineers Certification dated 10/20/2006

Dear Mark:

Based upon the information provided in your Engineer's Certification Submittal dated 10/20/2006, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982

Sincerely,

Arlene V. Portillo
Plan Checker, Planning Dept.- Hydrology
Development and Building Services

C: Marilyn Maldonado, COA# 759682
File

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Silver Leaf Subdivision
DRB #: 1003886 EPC#:_____

ZONE MAP/DRG. FILE #: J20 / D17
WORK ORDER#: 759681 & 759682

LEGAL DESCRIPTION: Tract C and Tract 42, Mesa Village Subdivision
CITY ADDRESS:_____

ENGINEERING FIRM: Mark Goodwin & Associates, PA
ADDRESS: PO Box 90606
CITY, STATE: Albuquerque, NM

CONTACT: Pavan Toleti
PHONE: 828-2200
ZIP CODE: 87199

OWNER: T.S. McNaney & Associates
ADDRESS: 5111 San Mateo NE, #A-1
CITY, STATE: Albuquerque, NM

CONTACT: Karl Smith
PHONE: 338-2286
ZIP CODE: 87109

ARCHITECT: N/A
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE:
ZIP CODE: _____

SURVEYOR: Surv-Tek
ADDRESS: 9384 Valley View Drive
CITY, STATE: Albuquerque, NM

CONTACT: Russ Hugg
PHONE: 897-3366
ZIP CODE: 87114

CONTRACTOR: Salls Brothers Construction, Inc.
ADDRESS: P.O. Box 66329
CITY, STATE: Albuquerque, NM

CONTACT: Fred Salls
PHONE: 873-8780
ZIP CODE: 87193

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☒ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☒ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

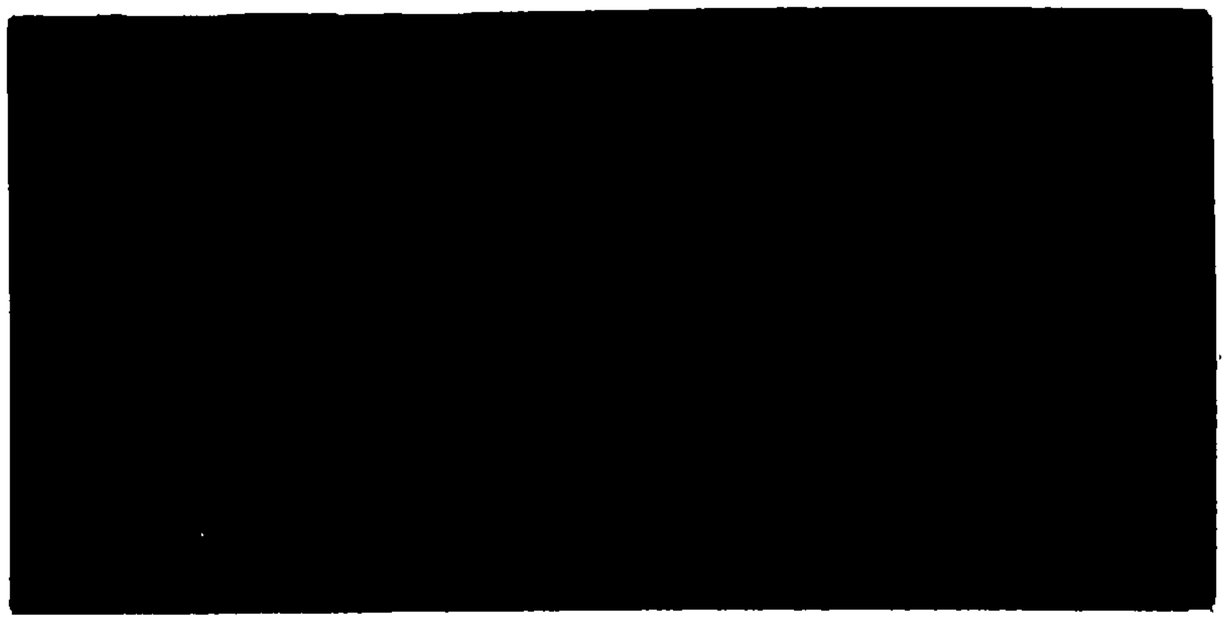
RECEIVED
OCT 20 2006
HYDROLOGY SECTION

DATE SUBMITTED: October 20, 2006

BY: Pavan Toleti

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.



MARK GOODWIN & ASSOCIATES
CONSULTING ENGINEERS
dmg

CITY OF ALBUQUERQUE

November 15, 2005

D. Mark Goodwin, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, NM 87199

Re: Silver Leaf Subdivision, Marron Circle Tract C & 42
Grading and Drainage Plan
Engineer's Stamp dated 11-09-05 (J20-D17)

Dear Mr. Goodwin,

Based upon the information provided in your submittal received 11-10-05, the above referenced plan is approved for Preliminary Plat Action by DRB. Once the Board has approved the plan, please submit a Mylar copy of the grading plan for my signature in order to obtain a Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso).

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rudy E. Rael, Associate Engineer
Planning Department.
Development and Building Services

C: Charles Caruso, DMD Storm Drainage Design
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

J-20 | D17

PROJECT TITLE: Silver Leaf Subdivision
DRB #: _____ EPC#:____

ZONE MAP/DRG. FILE #:J-20
WORK ORDER#:_____

LEGAL DESCRIPTION: Tract C & Tract 42
CITY ADDRESS:

ENGINEERING FIRM: Mark Goodwin & Associates
ADDRESS: PO Box 90606
CITY, STATE: Albuquerque, NM

CONTACT: Scott Davis
PHONE: 828-2200
ZIP CODE: 87199

OWNER: Evergreen Development, LLC
ADDRESS: 400 Gold SW, Suite 750
CITY, STATE: Albuquerque, NM

CONTACT: Tim McNaney
PHONE: 338-2285
ZIP CODE: 87102

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE:
ZIP CODE: _____

SURVEYOR: Aldrich Land Surveying
ADDRESS: PO Box 30701
CITY, STATE: Albuquerque, NM

CONTACT: Tim Aldrich
PHONE: 884-1990
ZIP CODE: 87190-0701

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

RECEIVED
NOV 10 2005
HYDROLOGY SECTION

CHECK TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ☒ DRAINAGE PLAN RESUBMITTAL
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- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
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- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☒ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

<Resub>

DATE SUBMITTED:11-10-05

BY:

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

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2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE REPORT
For
SILVER LEAF SUBDIVISION

Prepared for

STV Investments
1015 Tijeras NW, Suite 210
Albuquerque, NM 87102
(505) 883-2286

Prepared by

Mark goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199
(505) 828-2200

November 2005

JOHN R. MacKENZIE
NEW MEXICO
11619
REGISTERED PROFESSIONAL ENGINEER

11-8-05

TABLE OF CONTENTS

APPENDICES

PLATES

PROJECT DESCRIPTION

This drainage report has been prepared in support of a planned 55 lot single-family residential development. The proposed site is a currently vacant, infill, parcel located along the north side of Lomas Boulevard between Wyoming and Eubank Boulevards (see vicinity map).

DRAINAGE DESIGN CRITERIA

Existing and proposed hydrological conditions were analyzed for the 100-year, 6-hour storm event. The AHYMO hydrology modeling software was used in accordance with Section 22.2 of the City of Albuquerque Development Process Manual (DPM) in determining site run-off. AHYMO printouts have been included in Appendix A of this report. Manning's Equation was used in determining street capacities, and DPM capacity charts were referenced in determining drop inlet grate capacities.

EXISTING DRAINAGE CONDITIONS

The site is currently undeveloped with native vegetation throughout. The site slopes from east to west at approximately 2.50%. A total of 14.27 cfs is generated from the existing site during a 100-year event. Minor off-site flows impact this site from two directions. From the east, several small, undeveloped parcels, between this site and Easterday Drive deliver an estimated 1.08 cfs to the site, while a portion of the Lomas Blvd. right-of-way, behind the northern curb, impacts the site with an estimated 3.77 cfs from the south.

Together, a total of 19.12 cfs sheet flows across this site to the west, and is delivered to Sellers Drive during a 100-year event.

DEVELOPED DRAINAGE CONDITIONS

Off-Site Flows

With the proposed grading of this site, runoff from the east will be routed along the eastern perimeter wall to the Marron Circle right-of-way. Flows originating from the earthen slope along the north side of Lomas Blvd. will likewise be routed to the west along the sites southern perimeter wall to the Sellers Drive right-of-way. With this developed scenario, no off-site floodwaters will impact this site.

On-Site Flows

As depicted on the enclosed grade & drain plan, the proposed drainage management plan for this site includes each interior lot surface draining from back to front with lot runoff discharging to the fronting interior street (refer to basins B-1 thru B-3). Interior streets will be designed to discharge collected runoff to Marron Circle. Once in Marron Circle, storm flows from this site (Q=17.68 cfs) will be routed to the west, where a total of 3 existing drop inlest located in series along the south curb of Marron Circle, east of Sellers Drive, will intercept the flows. Given that this site is located at the very bottom of the contributing drainage basin, runoff from this site will pass through Marron Circle prior to upland flows arriving at this reach. Drainage calculations are included within this

report to show that there is sufficient capacity within the downstream street to route the flows in the manner proposed.

The 10 lots shown comprising Basin B-4 will be constructed to surface drain to Sellers Drive (Q=2.93 cfs). Once in Sellers Drive, flows from basin B-4, as well as any additional upland flows, are routed to the south, and west, within the existing streets to a concrete rundown which delivers the flows to the I-40 Channel.

Basin B-5, shown at the southwest corner of this site will be left in its present state. Any runoff generated from this tract will likewise surface discharge to Sellers Drive.

SUMMARY

This report shows that there is sufficient capacity downstream of this site within the existing infrastructure to allow for the development of this infill site in the manner proposed in this report.

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

PROJECT Silver Leaf
SUBJECT Drainage
BY JSO DATE 11-7-05
CHECKED _____ DATE _____
SHEET ___ OF ___

Total Area = 5.5 Acres

1. Find Q per lot:

Pads = 25' x 55' = 1375 SF
Drives = 20' x 20' = 400 SF
1775 SF

∴ 1775 • 55 lots = 97,625 SF = 2.24 AC. → 'D'

2. Find Q in ROW:

20% 'B' & 80% 'D'

ROW area = 0.84 AC

∴ 'B' = 0.17 AC , 'D' = 0.67 AC

3. Total Treatment Types:

'D' = 2.24 AC + 0.67 AC = 2.91 AC = 53%
'B' = 5.5 AC - 2.91 AC = 2.59 AC = 47%

4. Rainfall

P_1 = 2.14 in P_6 = 2.60 in

5. From AHYMO Output:

Basin B-1 (1.260c): Q = 4.91 cfs
Basin B-2 (1.430c): Q = 5.57 cfs
Basin B-3 (1.850c): Q = 7.20 cfs
Basin B-4 (0.750c): Q = 2.93 cfs
Basin B-5 (0.210c): Q = 0.45 cfs

∴ Q/lot = 21.06 cfs / 55 = 0.38 cfs

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Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

PROJECT Silver Leaf
SUBJECT Drainage
BY JSD DATE 11-7-05
CHECKED _____ DATE _____
SHEET ___ OF ___

On-site Street Capacities

- All on-site streets have same section & slope

Section = 26' F-F
4" Mountable C&G
Slope = 0.50%
Look @ worst case (B-3) where Q = 7.20cfs
Try Flow depth, d = 0.33'
$A = (.07' \times 26') + 2(\frac{1}{2}(.26') \cdot 13') = 5.20\,SF$ ✓
$R = A/Wp = 5.20/26.66 = 0.195$ ✓
$V = 1.49(R)^{.67}(S)^{.5}/.017 = 1.49(.195)^{.67}(.005)^{.5}/.017 = 2.07fps$ ✓
$Q = VA = 2.07fps \times 5.20SF = 10.76\,cfs$ ✓
$\therefore 10.76 > 7.20 \Rightarrow OK$ ✓
$d + V^2/2g = .33 + (2.07)^2/64.4 = 0.40$ ✓
$\therefore 0.40 < 0.53 \Rightarrow OK$ ✓

All streets work w/ 4" mountable C&G. ✓

•

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

PROJECT Silver Leaf
SUBJECT Drainage
BY JSD DATE 11-7-05
CHECKED _____ DATE _____
SHEET ____ OF ____

Street Capacity in Marron Circle

* As shown on grading plan, a total of 5 Double 'C' drop inlets exist on Marron Circle just east of Sellers Drive. Three of the inlets are located on the south curb. Given that this site is located at bottom on the contributing basin, runoff from this site will pass prior to upland flows.

1. Look @ worst case, between Teapan Ct & Sellers Dr.:

- Section = 32' F-F
- 6" & 8" standard C&G
- Slope = 2.5%
- Q = 17.68 %

Try flow depth = 0.50' ✓

$A = (.18' \times 32') + 2(1/2(.32' \cdot .16') + 2(1/2(.125 \cdot .2) = 11.13SF$

$R = 11.13/33 = 0.337$

$V = 1.49(.337)^{.67}(.025)^{.5}/.017 = 6.69 FPS$

$Q = 6.69(11.13) = 74.46 CFS$

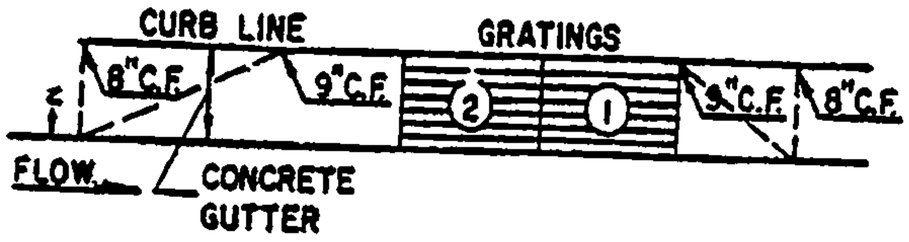
$d + V^2/2g = 1.19$ ✓

∴ w/ Q = 17.68 cfs, the flow depth is 2.5' ✓

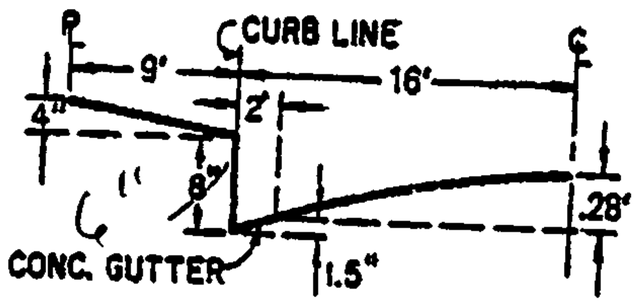
2. Inlet Capacity:

- Per Plate 22.3 D6, each existing drop inlet has a capacity of 10 CFS. Runoff from this site will be intercepted.

GRATING CAPACITIES FOR TYPE DOUBLE "C," AND "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

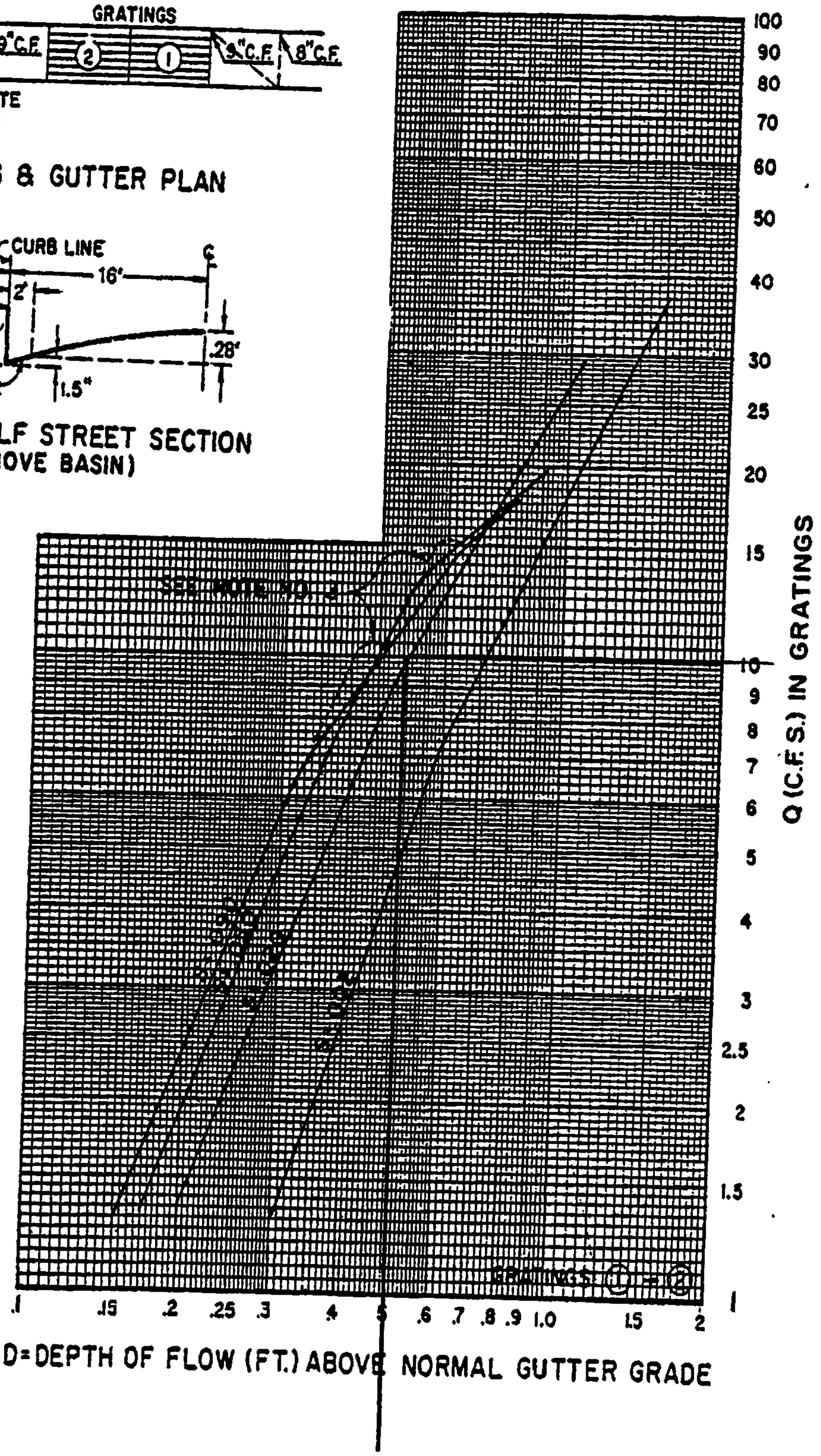


PLATE 22.3 D-6

```
          AHYMO PROGRAM (AHYMO_97) -                              - Version:
1997.02d
               RUN DATE (MON/DAY/YR) = 11/07/2005
               START TIME (HR:MIN:SEC) = 15:41:01     USER NO.= AHYMO-I-
9702dGoodwinM-AH
               INPUT FILE = C:\PROGRA~1\AHYMO_97\SILVER~1\SILVER~1.DAT


     START                           TIME=0.0
     *****                           Silver Leaf
     *****                           CALCULATE & ROUTE STORM FLOWS
     *****                           USE 100 YEAR 6 HOUR STORM EVENT
     *****                           FILE:  Silverleaf.DAT   02-03-05  JSD
     ********************************************************************
     RAINFALL                  TYPE=1 RAIN QUARTER=0.0 IN
                               RAIN ONE=2.14 IN RAIN SIX=2.60 IN
                               DT=0.03333 HR

                          COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS
2 - PEAK AT 1.40 HR.
                          DT =     .033333 HOURS        END TIME =     5.999940 HOURS
                             .0000   .0027   .0055   .0084   .0113   .0143   .0173
                             .0204   .0236   .0269   .0302   .0337   .0372   .0408
                             .0445   .0484   .0523   .0564   .0606   .0649   .0694
                             .0741   .0789   .0839   .0892   .0946   .1004   .1063
                             .1126   .1193   .1263   .1322   .1385   .1453   .1598
                             .1923   .2424   .3142   .4123   .5412   .7055   .9101
                            1.1598  1.3908  1.4874  1.5690  1.6417  1.7077  1.7685
                            1.8250  1.8777  1.9272  1.9737  2.0176  2.0591  2.0984
                            2.1356  2.1708  2.2043  2.2361  2.2662  2.2737  2.2808
                            2.2875  2.2939  2.3001  2.3061  2.3118  2.3173  2.3226
                            2.3278  2.3328  2.3376  2.3424  2.3470  2.3515  2.3558
                            2.3601  2.3643  2.3684  2.3724  2.3763  2.3801  2.3838
                            2.3875  2.3911  2.3947  2.3982  2.4016  2.4050  2.4083
                            2.4116  2.4148  2.4179  2.4210  2.4241  2.4271  2.4301
                            2.4331  2.4360  2.4388  2.4417  2.4445  2.4472  2.4499
                            2.4526  2.4553  2.4579  2.4605  2.4631  2.4656  2.4682
                            2.4706  2.4731  2.4755  2.4780  2.4803  2.4827  2.4851
                            2.4874  2.4897  2.4919  2.4942  2.4964  2.4986  2.5008
                            2.5030  2.5052  2.5073  2.5094  2.5115  2.5136  2.5157
                            2.5177  2.5198  2.5218  2.5238  2.5258  2.5278  2.5297
                            2.5317  2.5336  2.5355  2.5374  2.5393  2.5412  2.5431
                            2.5449  2.5468  2.5486  2.5504  2.5522  2.5540  2.5558
                            2.5575  2.5593  2.5610  2.5628  2.5645  2.5662  2.5679
                            2.5696  2.5713  2.5730  2.5746  2.5763  2.5779  2.5795
                            2.5812  2.5828  2.5844  2.5860  2.5876  2.5892  2.5907
                            2.5923  2.5939  2.5954  2.5969  2.5985  2.6000

     ********************************************************************
     *****
     *****FIRST LOOK AT EXISTING FLOWS GENERATED FROM THIS SITE
     *****
     COMPUTE NM HYD            ID=1 HYD NO=101.0 AREA=0.0086 SQ MI
                                    PER A=50 PER B=0 PER C=50 PER D=0
                                    TP=0.1333 HR MASS RAINFALL=-1
```

```
          K =    .133656HR    TP =    .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   20.764    CFS   UNIT VOLUME =    .9997       B =
321.84      P60 = 2.1400
          AREA =       .008600 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD                ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   101.00


          RUNOFF VOLUME =       .92095 INCHES      =.        .4224 ACRE-FEET
          PEAK DISCHARGE RATE =      14.29 CFS  AT   1.500 HOURS   BASIN AREA =
.0086 SQ. MI.


     *****
     *****OFFSITE FLOWS FROM THE UNDEVELOPED PARCELS TO THE EAST
     *****
     COMPUTE NM HYD           ID=5 HYD NO=105.0 AREA=0.000646 SQ MI
                                   PER A=50 PER B=0 PER C=50 PER D=0
                                   TP=0.1333 HR MASS RAINFALL=-1

          K =    .133656HR    TP =    .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   1.5597    CFS   UNIT VOLUME =    .9912       B =
321.84      P60 = 2.1400
          AREA =       .000646 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD                ID=5 CODE=1

                                        PARTIAL HYDROGRAPH   105.00


          RUNOFF VOLUME =       .92095 INCHES      =         .0317 ACRE-FEET
          PEAK DISCHARGE RATE =      1.08 CFS  AT   1.500 HOURS   BASIN AREA =
.0006 SQ. MI.


     *****
     *****OFFSITE FLOWS FROM A PORTION OF THE LOMAS BLVD. ROW
     *****
     COMPUTE NM HYD           ID=6 HYD NO=106.0 AREA=0.001894 SQ MI
                                   PER A=20 PER B=0 PER C=80 PER D=0
                                   TP=0.1333 HR MASS RAINFALL=-1

          K =    .118810HR    TP =    .133300HR    K/TP RATIO =   .891296
SHAPE CONSTANT, N =  3.978825
          UNIT PEAK =   5.0264    CFS   UNIT VOLUME =    .9978       B =
```

353.76   P60 = 2.1400
          AREA =   .001894 SQ MI   IA =   .41000 INCHES   INF =
.99800 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD   ID=6 CODE=1

                                        PARTIAL HYDROGRAPH   106.00

          RUNOFF VOLUME =   1.12819 INCHES   =   .1140 ACRE-FEET
          PEAK DISCHARGE RATE =   3.77 CFS AT   1.500 HOURS BASIN AREA =
.0019 SQ. MI.

     *****
     *****NEXT LOOK AT DEVELOPED CONDITIONS
     *****
     *****
     *****DEVELOPED BASIN B-1
     *****
     COMPUTE NM HYD   ID=2 HYD NO=102.0 AREA=0.001969 SQ MI
                                   PER A=0 PER B=47 PER C=0 PER D=53
                                   TP=0.1333 HR MASS RAINFALL=-1

          K =   .072649HR   TP =   .133300HR   K/TP RATIO =   .545000
SHAPE CONSTANT, N = 7.106420
          UNIT PEAK =   4.1201   CFS UNIT VOLUME =   .9965   B =
526.28   P60 = 2.1400
          AREA =   .001044 SQ MI   IA =   .10000 INCHES   INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

          K =   .133656HR   TP =   .133300HR   K/TP RATIO = 1.002670
SHAPE CONSTANT, N = 3.520804
          UNIT PEAK =   2.2344   CFS UNIT VOLUME =   .9943   B =
321.84   P60 = 2.1400
          AREA =   .000925 SQ MI   IA =   .50000 INCHES   INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD   ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   102.00

          RUNOFF VOLUME =   1.68113 INCHES   =   .1765 ACRE-FEET
          PEAK DISCHARGE RATE =   4.91 CFS AT   1.500 HOURS BASIN AREA =
.0020 SQ. MI.

```
     *****
     *****DEVELOPED BASIN B-2
     *****
     COMPUTE NM HYD          ID=3 HYD NO=103.0 AREA=0.002234 SQ MI
                                  PER A=0 PER B=47 PER C=0 PER D=53
                                  TP=0.1333 HR MASS RAINFALL=-1

          K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   4.6746    CFS   UNIT VOLUME =    .9969       B =
526.28      P60 = 2.1400
          AREA =      .001184 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

          K =   .133656HR    TP =   .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   2.5351    CFS  ,UNIT VOLUME =    .9948       B =
321.84      P60 = 2.1400
          AREA =      .001050 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD               ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   103.00


          RUNOFF VOLUME =     1.68113 INCHES     =         .2003 ACRE-FEET
          PEAK DISCHARGE RATE =       5.57 CFS  AT   1.500 HOURS   BASIN AREA =
.0022 SQ. MI.


     *****
     *****DEVELOPED BASIN B-3
     *****
     COMPUTE NM HYD          ID=4 HYD NO=104.0 AREA=0.002891 SQ MI
                                  PER A=0 PER B=47 PER C=0 PER D=53
                                  TP=0.1333 HR MASS RAINFALL=-1

          K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   6.0493    CFS , UNIT VOLUME =    .9976       B =
526.28      P60 = 2.1400
          AREA =      .001532 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333


          K =   .133656HR    TP =   .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   3.2807    CFS  ,UNIT VOLUME =    .9960       B =
```

321.84 P60 = 2.1400
AREA = .001359 SQ MI IA = .50000 INCHES INF =
1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT = .033333

PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = 1.68113 INCHES = .2592 ACRE-FEET
PEAK DISCHARGE RATE = 7.20 CFS AT 1.500 HOURS BASIN AREA =
.0029 SQ. MI.

*****
*****DEVELOPED BASIN B-4
*****
COMPUTE NM HYD ID=5 HYD NO=105.0 AREA=0.001172 SQ MI
PER A=0 PER B=47 PER C=0 PER D=53
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.4524 CFS UNIT VOLUME = .9949 B =
526.28 P60 = 2.1400
AREA = .000621 SQ MI IA = .10000 INCHES INF =
.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT = .033333

K = .133656HR TP = .133300HR K/TP RATIO = 1.002670
SHAPE CONSTANT, N = 3.520804
UNIT PEAK = 1.3300 CFS UNIT VOLUME = .9904 B =
321.84 P60 = 2.1400
AREA = .000551 SQ MI IA = .50000 INCHES INF =
1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT = .033333

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 105.00

RUNOFF VOLUME = 1.68113 INCHES = .1051 ACRE-FEET
PEAK DISCHARGE RATE = 2.93 CFS AT 1.500 HOURS BASIN AREA =
.0012 SQ. MI.

*****
*****BASIN B-5 - TRACT NOT BEING DEVELOPED
*****

```
     COMPUTE NM HYD          ID=6 HYD NO=106.0 AREA=0.000328 SQ MI
                                  PER A=80 PER B=5 PER C=15 PER D=0
                                  TP=0.1333 HR MASS RAINFALL=-1

          K =    .149739HR    TP =    .133300HR    K/TP RATIO =  1.123325
SHAPE CONSTANT, N =  3.149632
          UNIT PEAK =   .72294    CFS   UNIT VOLUME =    .9799       B =
293.80      P60 = 2.1400
          AREA =       .000328 SQ MI    IA =    .59750 INCHES    INF =
1.52300 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD               ID=6 CODE=1

                                        PARTIAL HYDROGRAPH   106.00
          RUNOFF VOLUME =       .73917 INCHES     =         .0129 ACRE-FEET
          PEAK DISCHARGE RATE =         .45 CFS  AT    1.533 HOURS   BASIN AREA =
.0003 SQ. MI.


     FINISH

          NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 15:41:01
```

CITY OF ALBUQUERQUE

March 22, 2005

Mark Goodwin, PE
Mark Goodwin & Associates
P.O. Box 90606,
Albuquerque, NM 87199

Re: Silver Leaf Subdivision Drainage Report
Engineer's Stamp dated 2-9-05, (J20/D17)

Dear Mr. Goodwin,

Based upon the information provided in your submittal dated 2-9-05, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board approves the plan, please submit a mylar copy for my signature in order to obtain a Rough 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).

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

Sincerely,

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

C: Chuck Caruso, DMD
file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

(fka Glyn Giles Apts) 1984

PROJECT TITLE: Silver Leaf Subdivision ZONE MAP/DRG #: J-20/D17

DRB#: — EPC #: — W.O.#: -

LEGAL DESCRIPTION: Lot C, Block 42, Mesa Village

CITY ADDRESS: —

ENGINEERING FIRM:	Mark Goodwin & Associates, PA	CONTACT:	Scott Davis
ADDRESS:	PO Box 90606	PHONE:	828-2200
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87199
OWNER:	AIM Management Corp	CONTACT:	Jeff Jezidnoski
ADDRESS:	1015 Tijeras NW - Suite 200	PHONE:	338-0200
CITY, STATE:	Alb, NM 87102	ZIP CODE:	
ARCHITECT:	N/A	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Aldrich Land Surveying	CONTACT:	Tim Aldrich
ADDRESS:	P.O. Box 30701	PHONE:	884-1990
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87190-0701
CONTRACTOR:	N/A	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN 1ST SUBMITTAL, req. TCL or equal
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERTIFICATION (TCL)
- ___ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

fee paid -

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TEMP)
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (specify)

WAS A PRE-DESIGN CONFERENCE ATTENDED?

- ___ YES
- X NO
- ___ COPY PROVIDED

DATE SUBMITTED: 2/8/05 BY: Scott Davis

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

RECEIVED
FEB 09 2005
HYDROLOGY SECTION

MARK GOODWIN & ASSOCIATES, PA

LETTER OF TRANSMITTAL

TO: City of Albuquerque **DATE:** February 9, 2005

RE: Silver Leaf Subdivision

ITEMS BEING TRANSMITTED

1	Grade & Drain Report
1	Review fee check for $550.00

■ FOR YOUR REVIEW ▫ FOR YOUR RECORDS

▫ AS YOU REQUESTED ▫ FOR YOUR COMMENTS

RECEIVED
FEB 09 2005
HYDROLOGY SECTION

PROJECT ENGINEER: Scott Davis .

P.O. Box 90606 ♦ Albuquerque, NM 87199 ♦ (505) 828-2200 ♦ (505) 797-9539 fax

[redacted]

MARK GOODWIN & ASSOCIATES
CONSULTING ENGINEERS

DRAINAGE REPORT
for
SILVER LEAF SUBDIVISION

Prepared for

STV Investments
1015 Tijeras NW, Suite 210
Albuquerque, NM 87102
(505) 883-2286

Prepared by

Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199
(505) 828-2200

February 2005

TABLE OF CONTENTS

APPENDICES

PLATES

PROJECT DESCRIPTION

This drainage report has been prepared in support of the development of a 5.5 acre in-fill tract located along the north side of Lomas Boulevard between Wyoming and Eubank Boulevards (see vicinity map). The proposed development will consist of 50 single-family townhome lots at a density of 9.0 DU/Acre.

DRAINAGE DESIGN CRITERIA

Existing and proposed hydrological conditions were analyzed for the 100-year, 6-hour storm event. The AHYMO hydrology modeling software was used in accordance with Section 22.2 of the City of Albuquerque Development Process Manual (DPM) in determining site run-off. AHYMO printouts have been included in Appendix A of this report. Manning's Equation was used in determining street and storm drain capacities.

EXISTING DRAINAGE CONDITIONS

The site is currently undeveloped with native vegetation throughout. The site slopes from east to west at approximately 2.50%. A total of 14.27 cfs is generated in the existing state from this site. Minor off-site flows impact this site from two directions. From the east, several small, undeveloped parcels, between this site and Easterday Drive deliver an estimated 1.08 cfs to the site, while a portion of the Lomas Blvd. right-of-way impacts the site with an estimated 3.77 cfs from the south.

Coupling the existing on-site, and off-site flows, a total of 19.12 cfs sheet flows from this site to the Sellers Drive right-of-way.

DEVELOPED DRAINAGE CONDITIONS

Off-Site Flows

With the proposed grading of this site, retention walls are planned along both the east and west boundary of this site. This plan calls for the 1.08 cfs of off-site flow from the east to be diverted north to the Marron Circle right-of-way. Flows from the Lomas right-of-way will be diverted west along the southern boundary retaining wall to the Sellers Drive right-of-way. Water blocks will be provided at the intersections of all proposed new streets to keep flows within Marron Circle from entering the site. Under this plan, no off-site storm waters will impact this site once developed.

On-Site Flows

As seen on the enclosed grade & drain plan, zero lot line housing is proposed for this site. Therefore, backyard flows along with the portion of the roof draining to the back, cannot drain to the front of each lot. Cross-lot, low-flow concrete drainage channels are proposed that will collect these flows and route them to the south where drop inlets are planned at the bulbs of the cul-de-sacs. The channels are sized at 6 foot width where public storm waters from the cul-de-sacs are routed via the concrete channels,. An adequately sized storm drain is planned along the southern boundary of the site. Collected storm flows will be routed in the new storm drain to the west where they will ultimately discharge into the existing storm drain in Sellers Drive. For those lots backing up to Sellers Drive, back yard flows will surface discharge directly to Sellers Drive via weep holes in the backyard walls.

Drainage easements will be shown on the site plat for all areas where cross-lot drainage is proposed. In addition, a public drainage easement will be obtained within the Lomas Blvd. right-of-way for the proposed storm drain.

SUMMARY

Under the drainage management plan spelled out in this report, off-site storm waters will be routed safely to public streets. On-site generated flows will also be safely conveyed to existing Public infrastructure in a proposed new storm drain system. Consequently, the proposed development of this infill site will have no adverse impacts to the surrounding area.

H-19-Z

H-20-Z

H-21-Z

J-19-Z

J-21-Z

K-19-Z

K-20-Z

K-21-Z

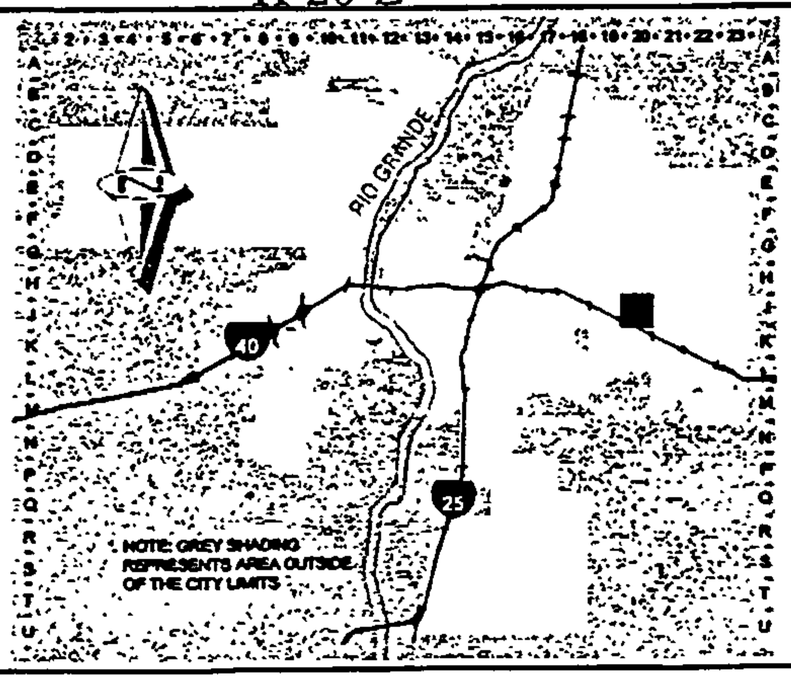
Zone Atlas Page: **J-20-Z**

Map amended through: Aug 06, 2004

Selected Symbols

- Unincorporated Areas
- Sector Plan Boundaries
- Parcel Boundaries
- Easement Lines
- Freeway Lanes
- Jurisdictional Boundaries
- Westgate Wall
- Escarpment
- Grant Boundaries
- Petroglyph
- H-1 Buffer Zone
- Arroyos
- LDN Noise Level
- Airport Clearance Zone
- Design Overlay Zones

0 750 1,500 Feet



CITY OF ALBUQUERQUE 1706

THREE HUNDRED YEARS 1706 • 2006

ALBUQUERQUE

Haciendo Historia

Albuquerque Geographic Information System

PLANNING DEPARTMENT

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539
e-mail: goodwinengrs@comcast.net

PROJECT MESA VILLAGE
SUBJECT DRAINAGE
BY JSD DATE 2/3/05
CHECKED _____ DATE _____
SHEET ____ OF ____

Total Area = 5.5 Acres

1. Find Q per lot:

Pads = 42' x 27' = 1,134 SF (Aver.)
Drives = 20' x 20' = 400 SF
1534 SF

∴ 1,534 • 50 = 76,700 SF = 1.76 AC → D'

2. Find Q in ROW:

20% B & 80% D
ROW Area = 0.94 AC.
∴ 'B' = .19 AC, 'D' = .75 AC

3. Total Treatment Types:

'D' = 1.76 AC + .75 AC = 2.51 AC = 46%
'B' = 5.5 AC - 2.51 AC = 2.99 AC = 54%

4. Rainfall:

P_1 = 2.14 in P_6 = 2.60 in.

5. From AHYMO Output:

Basin B-1: Q = 5.64 cfs
Basin B-2: Q = 6.91 cfs
Basin B-3: Q = 7.90 cfs
Per Lot Runoff: 20.45 cfs / 50 = 0.41 cfs

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539
e-mail: goodwinengrs@comcast.net

PROJECT Mesa Village
SUBJECT Drainage
BY JSD DATE 2/3/05
CHECKED _____ DATE _____
SHEET ____ OF ____

STREET CAPACITIES

- All streets are same section w/ same slope

Section = 26' F-F
Mountable Curb, slope = 0.75%
Look @ worst case, Q = 7.9 cfs
1) Use flow depth = 0.33'

$A = (.07' \times 26') + 2(1/2(.26) \cdot .13) = 5.20 SF$
$R_h = A/WP = 5.20/(26 + .66) = 0.195$
$V = 1.49(R)^{2/3}(S)^{1/2}/n$
$= 1.49(.195)^{2/3} \cdot (.0075)^{1/2}/.017 = 2.54 FPS$

$Q = VA = 2.54(5.20) = 13.21 cfs$
$13.21 > 7.9$ (OK)

$d + V^2/2g = .33 + (2.54)^2/64.4 = 0.43$
$.43 < .53$ (OK)

SIZE STORM DRAIN

a) Bottom Reach
$S = 2.33\%$, $Q = 20.45 cfs$
- Try 24" RCP flowing full

$A = \pi r^2 = 3.142$
$R_h = A/WP = 3.142/6.284 = .5$
$V = 1.49(R)^{2/3}(S)^{1/2}/n = 1.49(.5)^{.67}(.0233)^{.5}/.13 = 11 FPS$
$Q = VA = 11 \cdot 3.142 = 34.6 fps$
$34.6 > 20.45$ (OK)

∴ w/ S > 2% for remaining reaches, use 24"

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539
e-mail: goodwinengrs@comcast.net

PROJECT Mesa Village
SUBJECT Drainage
BY ISD DATE 2/3/05
CHECKED _____ DATE _____
SHEET ____ OF ____

Size Drop Inlets

Look @ worst case - Drop inlet @ bottom of B-3

$Q_{tot.} = 7.90$ cfs

$Q = CA(2gh)^{1/2}$

where $C = .67$, $h = .67'$

Single Albuquerque Grate Cross Area = 6.94 SF
minus bearing & cross bars = -2.51 SF
4.43 SF

w/ 1/2 clog factor, A = 2.21 SF
Use curb opening area .5 x 3 = 1.5 SF

$Q_{grate} = .67(2.21)(64.4 \cdot .67)^{1/2} = 9.73$ cfs
$Q_{curb\ opening} = .67(1.5)(64.4 \cdot .67)^{1/2} = +4.60$ cfs
14.33 cfs

∴ Use Single 'c' drop inlets at end of all 3 cul de sacs

```
START              TIME=0.0
*****              Mesa Village
*****              CALCULATE & ROUTE STORM FLOWS
*****              USE 100 YEAR 6 HOUR STORM EVENT
*****              FILE:  MESA VILLAGE.DAT   02-03-05  JSD
**********************************************************
RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=2.14 IN RAIN SIX=2.60 IN
                   DT=0.03333 HR
**********************************************************
*****
*****FIRST LOOK AT EXISTING FLOWS GENERATED FROM THIS SITE
*****
COMPUTE NM HYD          ID=1 HYD NO=101.0 AREA=0.0086 SQ MI
                  PER A=50 PER B=0 PER C=50 PER D=0
                  TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD         ID=1 CODE=1
*****
*****OFFSITE FLOWS FROM THE UNDEVELOPED PARCELS TO THE EAST
*****
COMPUTE NM HYD          ID=5 HYD NO=105.0 AREA=0.000646 SQ MI
                  PER A=50 PER B=0 PER C=50 PER D=0
                  TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD         ID=5 CODE=1
*****
*****OFFSITE FLOWS FROM A PORTION OF THE LOMAS BLVD. ROW
*****
COMPUTE NM HYD          ID=6 HYD NO=106.0 AREA=0.001894 SQ MI
                  PER A=20 PER B=0 PER C=80 PER D=0
                  TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD         ID=6 CODE=1
*****
*****NEXT LOOK AT DEVELOPED CONDITIONS
*****
*****
*****DEVELOPED BASIN B-1
*****
COMPUTE NM HYD          ID=2 HYD NO=102.0 AREA=0.002369 SQ MI
                  PER A=0 PER B=54 PER C=0 PER D=46
                  TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD         ID=2 CODE=1
*****
*****DEVELOPED BASIN B-2
*****
COMPUTE NM HYD          ID=3 HYD NO=103.0 AREA=0.002904 SQ MI
                  PER A=0 PER B=54 PER C=0 PER D=46
                  TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD         ID=3 CODE=1
*****
*****DEVELOPED BASIN B-3
*****
COMPUTE NM HYD          ID=4 HYD NO=104.0 AREA=0.003321 SQ MI
                  PER A=0 PER B=54 PER C=0 PER D=46
                  TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD         ID=4 CODE=1
FINISH
```

```
          AHYMO PROGRAM (AHYMO_97) -                              - Version:
1997.02d
               RUN DATE (MON/DAY/YR) = 02/05/2005
               START TIME (HR:MIN:SEC) = 10:40:29     USER NO.= AHYMO-I-
9702dGoodwinM-AH
               INPUT FILE = C:\PROGRA~1\AHYMO_97\MESAVI~1\MESAVI~1.DAT


     START                          TIME=0.0
     *****                          Mesa Village
     *****                          CALCULATE & ROUTE STORM FLOWS
     *****                          USE 100 YEAR 6 HOUR STORM EVENT
     *****                          FILE:  MESA VILLAGE.DAT   02-03-05  JSD
     ********************************************************************
     RAINFALL                  TYPE=1 RAIN QUARTER=0.0 IN
                               RAIN ONE=2.14 IN RAIN SIX=2.60 IN
                               DT=0.03333 HR

                    COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS
2 - PEAK AT 1.40 HR.
                    DT =     .033333 HOURS        END TIME =     5.999940 HOURS
                       .0000   .0027   .0055   .0084   .0113   .0143   .0173
                       .0204   .0236   .0269   .0302   .0337   .0372   .0408
                       .0445   .0484   .0523   .0564   .0606   .0649   .0694
                       .0741   .0789   .0839   .0892   .0946   .1004   .1063
                       .1126   .1193   .1263   .1322   .1385   .1453   .1598
                       .1923   .2424   .3142   .4123   .5412   .7055   .9101
                     1.1598  1.3908  1.4874  1.5690  1.6417  1.7077  1.7685
                     1.8250  1.8777  1.9272  1.9737  2.0176  2.0591  2.0984
                     2.1356  2.1708  2.2043  2.2361  2.2662  2.2737  2.2808
                     2.2875  2.2939  2.3001  2.3061  2.3118  2.3173  2.3226
                     2.3278  2.3328  2.3376  2.3424  2.3470  2.3515  2.3558
                     2.3601  2.3643  2.3684  2.3724  2.3763  2.3801  2.3838
                     2.3875  2.3911  2.3947  2.3982  2.4016  2.4050  2.4083
                     2.4116  2.4148  2.4179  2.4210  2.4241  2.4271  2.4301
                     2.4331  2.4360  2.4388  2.4417  2.4445  2.4472  2.4499
                     2.4526  2.4553  2.4579  2.4605  2.4631  2.4656  2.4682
                     2.4706  2.4731  2.4755  2.4780  2.4803  2.4827  2.4851
                     2.4874  2.4897  2.4919  2.4942  2.4964  2.4986  2.5008
                     2.5030  2.5052  2.5073  2.5094  2.5115  2.5136  2.5157
                     2.5177  2.5198  2.5218  2.5238  2.5258  2.5278  2.5297
                     2.5317  2.5336  2.5355  2.5374  2.5393  2.5412  2.5431
                     2.5449  2.5468  2.5486  2.5504  2.5522  2.5540  2.5558
                     2.5575  2.5593  2.5610  2.5628  2.5645  2.5662  2.5679
                     2.5696  2.5713  2.5730  2.5746  2.5763  2.5779  2.5795
                     2.5812  2.5828  2.5844  2.5860  2.5876  2.5892  2.5907
                     2.5923  2.5939  2.5954  2.5969  2.5985  2.6000

     ********************************************************************
     *****
     *****FIRST LOOK AT EXISTING FLOWS GENERATED FROM THIS SITE
     *****
     COMPUTE NM HYD            ID=1 HYD NO=101.0 AREA=0.0086 SQ MI
                                    PER A=50 PER B=0 PER C=50 PER D=0
                                    TP=0.1333 HR MASS RAINFALL=-1
```

```
          K =    .133656HR    TP =    .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   20.764    CFS   UNIT VOLUME =    .9997       B =
321.84      P60 = 2.1400
          AREA =      .008600 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD                ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   101.00

          RUNOFF VOLUME =      .92095 INCHES     =        .4224 ACRE-FEET
          PEAK DISCHARGE RATE =      14.29 CFS  AT   1.500 HOURS   BASIN AREA =
.0086 SQ. MI.

     *****
     *****OFFSITE FLOWS FROM THE UNDEVELOPED PARCELS TO THE EAST
     *****
     COMPUTE NM HYD           ID=5 HYD NO=105.0 AREA=0.000646 SQ MI
                                   PER A=50 PER B=0 PER C=50 PER D=0
                                   TP=0.1333 HR MASS RAINFALL=-1

          K =    .133656HR    TP =    .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   1.5597    CFS   UNIT VOLUME =    .9912       B =
321.84      P60 = 2.1400
          AREA =      .000646 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD                ID=5 CODE=1

                                        PARTIAL HYDROGRAPH   105.00

          RUNOFF VOLUME =      .92095 INCHES     =        .0317 ACRE-FEET
          PEAK DISCHARGE RATE =      1.08 CFS  AT   1.500 HOURS   BASIN AREA =
.0006 SQ. MI.

     *****
     *****OFFSITE FLOWS FROM A PORTION OF THE LOMAS BLVD. ROW
     *****
     COMPUTE NM HYD           ID=6 HYD NO=106.0 AREA=0.001894 SQ MI
                                   PER A=20 PER B=0 PER C=80 PER D=0
                                   TP=0.1333 HR MASS RAINFALL=-1

          K =    .118810HR    TP =    .133300HR    K/TP RATIO =   .891296
SHAPE CONSTANT, N =  3.978825
          UNIT PEAK =   5.0264    CFS   UNIT VOLUME =    .9978       B =
```

353.76   P60 = 2.1400
          AREA =   .001894 SQ MI   IA =   .41000 INCHES   INF =
.99800 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD   ID=6 CODE=1

                                        PARTIAL HYDROGRAPH   106.00

          RUNOFF VOLUME =   1.12819 INCHES   =   .1140 ACRE-FEET
          PEAK DISCHARGE RATE =   3.77 CFS AT   1.500 HOURS   BASIN AREA =
.0019 SQ. MI.

     *****
     *****NEXT LOOK AT DEVELOPED CONDITIONS
     *****
     *****
     *****DEVELOPED BASIN B-1
     *****
     COMPUTE NM HYD   ID=2 HYD NO=102.0 AREA=0.002369 SQ MI
                                   PER A=0 PER B=54 PER C=0 PER D=46
                                   TP=0.1333 HR MASS RAINFALL=-1

          K =   .072649HR   TP =   .133300HR   K/TP RATIO =   .545000
SHAPE CONSTANT, N = 7.106420
          UNIT PEAK =   4.3024   CFS   UNIT VOLUME =   .9965   B =
526.28   P60 = 2.1400
          AREA =   .001090 SQ MI   IA =   .10000 INCHES   INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

          K =   .133656HR   TP =   .133300HR   K/TP RATIO = 1.002670
SHAPE CONSTANT, N = 3.520804
          UNIT PEAK =   3.0887   CFS   UNIT VOLUME =   .9960   B =
321.84   P60 = 2.1400
          AREA =   .001279 SQ MI   IA =   .50000 INCHES   INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD   ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   102.00

          RUNOFF VOLUME =   1.58073 INCHES   =   .1997 ACRE-FEET
          PEAK DISCHARGE RATE =   5.64 CFS AT   1.500 HOURS   BASIN AREA =
.0024 SQ. MI.

```
     *****
     *****DEVELOPED BASIN B-2
     *****
     COMPUTE NM HYD          ID=3 HYD NO=103.0 AREA=0.002904 SQ MI
                                  PER A=0 PER B=54 PER C=0 PER D=46
                                  TP=0.1333 HR MASS RAINFALL=-1

          K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   5.2740    CFS   UNIT VOLUME =    .9973       B =
526.28      P60 = 2.1400
          AREA =      .001336 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

          K =   .133656HR    TP =   .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   3.7862    CFS   UNIT VOLUME =    .9967       B =
321.84      P60 = 2.1400
          AREA =      .001568 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333

     PRINT HYD               ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   103.00


          RUNOFF VOLUME =     1.58073 INCHES     =         .2448 ACRE-FEET
          PEAK DISCHARGE RATE =       6.91 CFS  AT   1.500 HOURS   BASIN AREA =
.0029 SQ. MI.


     *****
     *****DEVELOPED BASIN B-3
     *****
     COMPUTE NM HYD          ID=4 HYD NO=104.0 AREA=0.003321 SQ MI
                                  PER A=0 PER B=54 PER C=0 PER D=46
                                  TP=0.1333 HR MASS RAINFALL=-1

          K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   6.0313    CFS   UNIT VOLUME =    .9976       B =
526.28      P60 = 2.1400
          AREA =      .001528 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT =   .033333


          K =   .133656HR    TP =   .133300HR    K/TP RATIO =  1.002670
SHAPE CONSTANT, N =  3.520804
          UNIT PEAK =   4.3299    CFS   UNIT VOLUME =    .9972       B =
```

321.84 P60 = 2.1400
AREA = .001793 SQ MI IA = .50000 INCHES INF =
1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
DT = .033333

PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = 1.58073 INCHES = .2800 ACRE-FEET
PEAK DISCHARGE RATE = 7.90 CFS AT 1.500 HOURS BASIN AREA =
.0033 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 10:40:29