CITY OF
Albuquerque

August 4, 1998

Jeff Mortensen, P.E.
Jeff Mortensen & Associates, Inc.
6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109

RE: Grading and Drainage Certification Plan for La Cueva Village, Unit 1 (C19/D11B) Submitted for Release of Financial Guarantees, Engineer's Stamp Dated 7/21/98.

Dear Mr. Mortensen:

Based on the information provided in the submittal of July 23, 1998, the above referenced plan is adequate to satisfy the requirement for Subdivision Certification for release of financial guarantees per the Infrastructure List dated June 10, 1997.

The Letter of Map Revision (LOMR) issued by the Federal Emergency Management Agency on April 24, 1998 removed the floodplain from the property and confined the 100-year flow into the constructed channel. The LOMR condition for the release of financial guarantees is therefore satisfied.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Terri Martin (DRB #96-546)(with attachment)
Don Hoech, Owner
File

CITY OF
Albuquerque

July 29, 1997

Martin J. Chávez, Mayor

J. Graeme Means, P. E.
Jeff Mortensen & Associates, Inc.
6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109

RE: Revised Grading and Drainage Plan for La Cueva Village, Unit 1 (C19/D11B) Submitted for Final Plat and Rough Grading Permit Approval, Engineer's Stamp Dated 7/15/97.

Dear Mr. Means:

Based on the information provided in the submittal of July 16, 1997, the above referenced Grading and Drainage plan is approved for Final Plat action and for Rough Grading Permit release.

As you are aware, a topsoil disturbance permit must be obtained prior to any grading occurring on the site. The Engineer's Certification of the Grading and Drainage plan which is approved by the DRB is required for release of Financial Guarantees. Also, the Letter of Map Revision must be obtained from FEMA prior to release of Financial Guarantees for this subdivision.

If you should have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Don Hoech, Hoech Real Estate Corp.
Larry Caudill, Environmental Health
File

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N E. - ALBUQUERQUE, N M. 87107
TELEPHONE (505) 884-2215

January 9, 1998

M.R. Tafoya Construction Inc.
PO Box 10327
Albuquerque, New Mexico 87184

Re: North Domingo Baca Arroyo Window G Channel, Substantial Completion

Dear Mr. Tafoya,

As of the above referenced date, the Window G Channel is to be considered Substantially Complete. There are are a number of items to be completed prior to final acceptance of the project by AMAFCA. These items include, but are not limited to the following:

- Excavation of the channel outlet west of Wyoming Blvd.
- Soil cement rundown at Sta. 27+60
- Completion of soil cement "step" repairs
- Completion of soil cement and rip-rap west of Sta. 9+77
- Tie-in 48" RCP storm drain to the existing manhole on Anaheim Ave.
- Final grading of the south side to 2% slope toward channel
- Final grading of interim channel east of Sta. 34+32
- Installation of the guard rail along Anaheim Ave.
- Installation of the fence at the bridge abutments
- General clean up of the channel and the site

We are currently working with Jeff Mortensen & Asociates to obtain a final completion on the City Work Order items which include the bridge abutments and utilities. There will possibly be a final inspection by the City of Albuquerque on the bridge abutments and utility work next week.
If you have any questions regarding the above items please contact Ron Fernandez at 884-2215 or 239-8144.

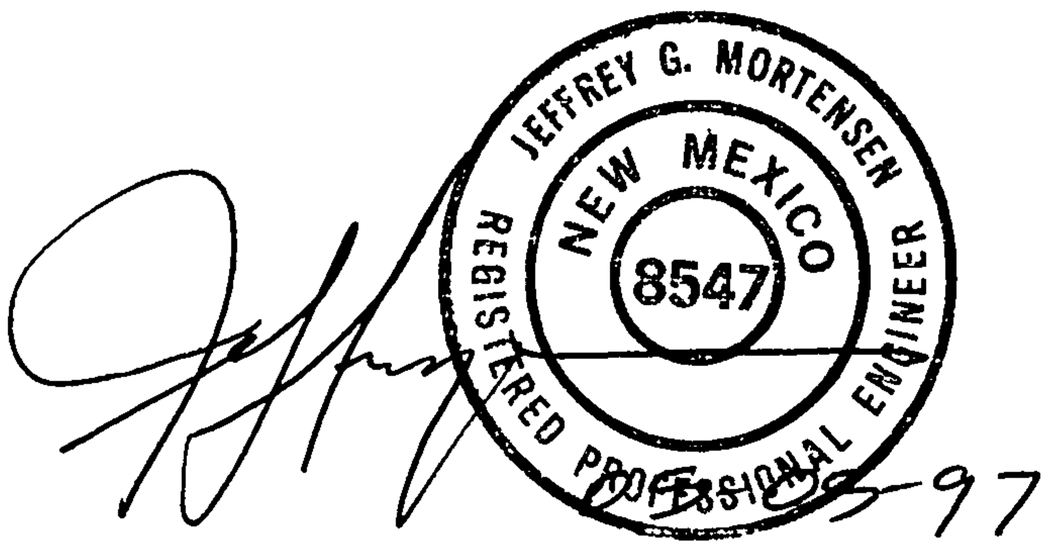
Sincerely,

John Kelly, PE
Interim Executive Director
AMAFCA

cc: Don Hoech, HREC
Graeme Means, JMA

LA CUEVA VILLAGE DRAINAGE CALCULATIONS
(C19/D11B)
MAY, 1997

Prepared by Jeff Mortensen and Associates, inc.
for Hoech Real Estate Corp.



JMA # 970011

```
*2345678901234567890
*
*    Window "G" Proposed Conditions                    JMA # 940956
*                                                      December, 1996
*                                                      G.M. 486-5
*
*
*    100 - YEAR STORM
*
START                          TIME = 0.0   PUNCH CODE = 0   PRINT LINES = -1
RAINFALL                       TYPE = 2   RAIN QUARTER = 0.0
                               RAIN ONE = 2.14 IN RAIN SIX = 2.60 IN
                               RAIN DAY = 3.10 IN DT = 0.02
*
* Offsite Baisn (East of Barstow)
COMPUTE NM HYD                 ID = 1   HYD NO = 101.01   AREA = 0.913
                               PER A = 43   PER B = 20 PER C = 20   PER D = 17
                               TP = -0.314 HR   MASS RAIN =-1

PRINT HYD                      ID = 1   CODE = 1

* Tract A (Pinnacle Estates Apartments)
COMPUTE NM HYD                 ID = 2   HYD NO = 101.02   AREA = 0.0234375
                               PER A = 0   PER B = 10 PER C = 20   PER D = 70
                               TP = -0.133333333 HR   MASS RAIN =-1

PRINT HYD                      ID = 2   CODE = 1

* La Cueva Village Unit 1, Lots [redacted] (WEST BASIN)

COMPUTE NM HYD                 ID = 3   HYD NO = 101.03   AREA = 0.006525
                               PER A = 0   PER B = 20 PER C = 20   PER D = 60
                               TP = -0.133333333 HR   MASS RAIN =-1

PRINT HYD                      ID = 3   CODE = 1

* La Cueva Village Unit 1, Lots 1-18, [redacted] (East Basin)

COMPUTE NM HYD                 ID = 4   HYD NO = 101.04   AREA = 0.010454 SQ MI
                               PER A = 0   PER B = 20   PER C = 20   PER D = 60
                               TP = -0.1333333333 HR   MASS RAIN = -1

PRINT HYD                      ID = 4   CODE = 1

*   Add East and West La Cueva Village Basins

ADD HYD                        ID = 5   HYD NO = 101.05   ID I = 3   ID II = 4

PRINT HYD                      ID = 5   CODE = 1

* Tract C (Shopping Center)

COMPUTE NM HYD                 ID = 6 HYD NO = 101.06   AREA = 0.0165 SQ MI
                               PER A = 0   PER B =3.3   PER C = 6.7   PER D = 90
                               TP = -0.133333333 HR MASS RAIN = -1

PRINT HYD                      ID = 6   CODE = 1

* Tract B (La Cueva Village Unit 2, Lots 1-16)
* UNDEVELOPED INTERIM CONDITION *
```

Basin A

Basin B

BASIN C

```
COMPUTE NM HYD      ID = 7 HYD NO = 101.07  AREA = 0.0055 SQ MI
                    PER A = 80  PER B = 10  PER C = 10 PER D = 0
                    TP = -0.1333333333 HR  MASS RAIN = -1

PRINT HYD           ID = 7 CODE = 1

*  Add to get total flow from La Cueva Village

ADD HYD             ID = 8 HYD NO = 101.08  ID I = 5 ID II = 7

PRINT HYD           ID = 8 CODE = 1

* Carmel / Holly Right of Way

COMPUTE NM HYD      ID = 9 HYD NO = 101.09 AREA = 0.00609 SQ MI
                    PER A = 0  PER B = 0  PER C = 11  PER D = 89
                    TP = -0.1333333333 HR   MASS RAIN = -1

PRINT HYD           ID = 9 CODE = 1

* Wyoming Right of Way

COMPUTE NM HYD      ID = 10 HYD NO = 101.10 AREA = 0.00443 SQ MI
                    PER A = 0   PER B = 0  PER C = 46  PER D = 54
                    TP = -0.13333333333 HR  MASS RAIN = -1

PRINT HYD           ID = 10  CODE = 1

FINISH
```

K = .121314HR TP = .133333HR K/TP RATIO = .909858 SHAPE CONSTANT, N = 3.892621
UNIT PEAK = 6.8110 CFS UNIT VOLUME = .9980 B = 347.95 P60 = 2.1400
AREA = .002610 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 3 CODE = 1

PARTIAL HYDROGRAPH 101.03

RUNOFF VOLUME = 1.97426 INCHES = .6870 ACRE-FEET
PEAK DISCHARGE RATE = 17.65 CFS AT 1.520 HOURS BASIN AREA = .0065 SQ. MI.

BASIN A

* La Cueva Village Unit 1, Lots 1-18, 36-37, 44-59 (East Basin)

COMPUTE NM HYD ID = 4 HYD NO = 101.04 AREA = 0.010454 SQ MI
PER A = 0 PER B = 20 PER C = 20 PER D = 60
TP = -0.1333333333 HR MASS RAIN = -1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.758 CFS UNIT VOLUME = .9996 B = 526.28 P60 = 2.1400
AREA = .006272 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

K = .121314HR TP = .133333HR K/TP RATIO = .909858 SHAPE CONSTANT, N = 3.892621
UNIT PEAK = 10.912 CFS UNIT VOLUME = .9988 B = 347.95 P60 = 2.1400
AREA = .004182 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 4 CODE = 1

PARTIAL HYDROGRAPH 101.04

RUNOFF VOLUME = 1.97426 INCHES = 1.1007 ACRE-FEET
PEAK DISCHARGE RATE = 28.26 CFS AT 1.520 HOURS BASIN AREA = .0105 SQ. MI.

BASIN B

* Add East and West La Cueva Village Basins

ADD HYD ID = 5 HYD NO = 101.05 ID I = 3 ID II = 4

PRINT HYD ID = 5 CODE = 1

PARTIAL HYDROGRAPH 101.05

RUNOFF VOLUME = 1.97426 INCHES = 1.7878 ACRE-FEET
PEAK DISCHARGE RATE = 45.91 CFS AT 1.520 HOURS BASIN AREA = .0170 SQ. MI.

```
* Tract C (Shopping Center)

COMPUTE NM HYD       ID = 6 HYD NO = 101.06  AREA = 0.0165 SQ MI
                     PER A = 0  PER B =3.3  PER C = 6.7  PER D = 90
                     TP = -0.133333333 HR MASS RAIN = -1


   K =   .072667HR    TP =   .133333HR    K/TP RATIO =   .545000    SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =   58.614    CFS   UNIT VOLUME =    .9999      B =   526.28      P60 = 2.1400
   AREA =      .014850 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

   K =   .117107HR    TP =   .133333HR    K/TP RATIO =   .878302    SHAPE CONSTANT, N =  4.041902
   UNIT PEAK =   4.4297    CFS   UNIT VOLUME =    .9969      B =   357.95      P60 = 2.1400
   AREA =      .001650 SQ MI    IA =    .39950 INCHES    INF =    .96860 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

PRINT HYD            ID = 6  CODE = 1

                                PARTIAL HYDROGRAPH   101.06


   RUNOFF VOLUME =     2.42250 INCHES     =       2.1318 ACRE-FEET
   PEAK DISCHARGE RATE =      51.11 CFS  AT   1.500 HOURS   BASIN AREA =   .0165 SQ. MI.



* Tract B (La Cueva Village Unit 2, Lots 1-16)
* UNDEVELOPED INTERIM CONDITION *

COMPUTE NM HYD       ID = 7 HYD NO = 101.07  AREA = 0.0055 SQ MI
                     PER A = 80  PER B = 10  PER C = 10 PER D = 0
                     TP = -0.1333333333 HR  MASS RAIN = -1


   K =   .151014HR    TP =   .133333HR    K/TP RATIO =  1.132606    SHAPE CONSTANT, N =  3.125128
   UNIT PEAK =   12.040    CFS   UNIT VOLUME =    .9988      B =   291.87      P60 = 2.1400
   AREA =      .005500 SQ MI    IA =    .60500 INCHES    INF =   1.54400 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

PRINT HYD            ID = 7 CODE = 1

                                PARTIAL HYDROGRAPH   101.07


   RUNOFF VOLUME =      .72760 INCHES     =        .2134 ACRE-FEET
   PEAK DISCHARGE RATE =       7.40 CFS  AT   1.520 HOURS   BASIN AREA =   .0055 SQ. MI.
```

= BASIN C

```
* Add to get total flow from La Cueva Village

ADD HYD              ID = 8 HYD NO = 101.08  ID I = 5 ID II = 7

PRINT HYD            ID = 8 CODE = 1

                                PARTIAL HYDROGRAPH   101.08
```

RUNOFF VOLUME = 1.66923 INCHES = 2.0012 ACRE-FEET
PEAK DISCHARGE RATE = 53.31 CFS AT 1.520 HOURS BASIN AREA = .0225 SQ. MI.

Total Unit 1

* Carmel / Holly Right of Way

COMPUTE NM HYD ID = 9 HYD NO = 101.09 AREA = 0.00609 SQ MI
PER A = 0 PER B = 0 PER C = 11 PER D = 89
TP = -0.1333333333 HR MASS RAIN = -1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 21.393 CFS UNIT VOLUME = .9995 B = 526.28 P60 = 2.1400
AREA = .005420 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

K = .108940HR TP = .133333HR K/TP RATIO = .817047 SHAPE CONSTANT, N = 4.373949
UNIT PEAK = 1.9061 CFS UNIT VOLUME = .9930 B = 379.38 P60 = 2.1400
AREA = .000670 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 9 CODE = 1

PARTIAL HYDROGRAPH 101.09

RUNOFF VOLUME = 2.42335 INCHES = .7871 ACRE-FEET
PEAK DISCHARGE RATE = 18.93 CFS AT 1.500 HOURS BASIN AREA = .0061 SQ. MI.

* Wyoming Right of Way

COMPUTE NM HYD ID = 10 HYD NO = 101.10 AREA = 0.00443 SQ MI
PER A = 0 PER B = 0 PER C = 46 PER D = 54
TP = -0.13333333333 HR MASS RAIN = -1

K = .072667HR TP = .133334HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.4421 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 2.1400
AREA = .002392 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

K = .108940HR TP = .133334HR K/TP RATIO = .817047 SHAPE CONSTANT, N = 4.373949
UNIT PEAK = 5.7982 CFS UNIT VOLUME = .9977 B = 379.38 P60 = 2.1400
AREA = .002038 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 10 CODE = 1

PARTIAL HYDROGRAPH 101.10

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/06/1996
INPUT FILE = 940956.inp USER NO.= J_MORTEN.I01

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	PAGE = 1 NOTATION
START										TIME= .0
RAINFALL TYPE= 2										RAIN24= 3.10
COMPUTE NM HYD	101.01	-	1	.91300	986.10	55.101	1.13158	1.700	1.688	PER IMP= 17.0
COMPUTE NM HYD	101.02	-	2	.02344	66.95	2.676	2.14048	1.500	4.464	PER IMP= 70.0
COMPUTE NM HYD	101.03	-	3	.00653	17.65	.687	1.97426	1.520	4.226	PER IMP= 60.0
COMPUTE NM HYD	101.04	-	4	.01045	28.26	1.101	1.97426	1.520	4.224	PER IMP= 60.0
ADD HYD	101.05	3& 4	5	.01698	45.91	1.788	1.97426	1.520	4.225	
COMPUTE NM HYD	101.06	-	6	.01650	51.11	2.132	2.42250	1.500	4.840	PER IMP= 90.0
COMPUTE NM HYD	101.07	-	7	.00550	7.40	.213	.72760	1.520	2.103	PER IMP= .0
ADD HYD	101.08	5& 7	8	.02248	53.31	2.001	1.66923	1.520	3.706	
COMPUTE NM HYD	101.09	-	9	.00609	18.93	.787	2.42335	1.500	4.857	PER IMP= 89.0
COMPUTE NM HYD	101.10	-	10	.00443	12.22	.467	1.97793	1.520	4.309	PER IMP= 54.0
FINISH										

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B Midway Park Blvd. NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-4250 FAX (505) 345-4254

JOB 1TU720

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

TIME OF CONCENTRATION CALCULATIONS (UPSTREAM OFFSITE BASIN)

L = 8,300 feet (Barstow to Hamilton Dam)

$$t_c = ((12000 - L)/(72{,}000 * K * S^{0.5})) + ((L - 4000) * K_N * (L_{CA}/L)^{0.33}/(552.2 * S^{0.165}))$$

$P_{60} = 2.14$

$K_N = 0.033$

$S = 0.03$

$L = 8{,}300$ ft

$L_{CA} = 4{,}500$ ft

$K = 3$

$t_c = 0.099 + 0.372 = 0.471$ hr

$$t_p = (2/3)t_c = (2/3)(0.471) = 0.314 \text{ hr}$$

```
*23456789012345678901
*
*    Window "G" Ultimate Conditions                    JMA # 940956
*                                                      December, 1996
*                                                      G.M. 486-5
*
*
*
*    100 - YEAR STORM
*
START                    TIME = 0.0   PUNCH CODE = 0   PRINT LINES = -1
RAINFALL                 TYPE = 2   RAIN QUARTER = 0.0
                         RAIN ONE = 2.14 IN RAIN SIX = 2.60 IN
                         RAIN DAY = 3.10 IN DT = 0.02

* Tract A (Apartments)
COMPUTE NM HYD           ID = 2   HYD NO = 101.02   AREA = 0.0234375
                         PER A = 0   PER B = 10 PER C = 20   PER D = 70
                         TP = -0.133333333 HR   MASS RAIN =-1

PRINT HYD                ID = 2   CODE = 1

* La Cueva Village Unit 1, Lots 19-33, 38-44 (WEST BASIN)

COMPUTE NM HYD           ID = 3   HYD NO = 101.03   AREA = 0.006525
                         PER A = 0   PER B = 20 PER C = 20   PER D = 60
                         TP = -0.133333333 HR   MASS RAIN =-1

PRINT HYD                ID = 3   CODE = 1

* La Cueva Village Unit 1, Lots 1-18, 36-37, 44-59 (East Basin)

COMPUTE NM HYD           ID = 4   HYD NO = 101.04   AREA = 0.010454 SQ MI
                         PER A = 0   PER B = 20   PER C = 20   PER D = 60
                         TP = -0.1333333333 HR   MASS RAIN = -1

PRINT HYD                ID = 4   CODE = 1

*   Add East and West La Cueva Village Basins

ADD HYD                  ID = 5   HYD NO = 101.05   ID I = 3   ID II = 4

PRINT HYD                ID = 5   CODE = 1

* Tract C (Shopping Center)

COMPUTE NM HYD           ID = 6 HYD NO = 101.06   AREA = 0.0204 SQ MI
                         PER A = 0   PER B =3.3   PER C = 6.7   PER D = 90
                         TP = -0.133333333 HR MASS RAIN = -1

PRINT HYD                ID = 6   CODE = 1

* Tract B (La Cueva Village Unit 2, Lots 1-16)
* DEVELOPED ULTIMATE CONDITION *

COMPUTE NM HYD           ID = 7 HYD NO = 101.07   AREA = 0.00485719 SQ MI
                         PER A = 0   PER B = 20   PER C = 20 PER D = 60
                         TP = -0.1333333333 HR   MASS RAIN = -1

PRINT HYD                ID = 7 CODE = 1
```

BASIN A

BASIN B

BASIN C

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

K = .117190HR TP = .133333HR K/TP RATIO = .878921 SHAPE CONSTANT, N = 4.038848
UNIT PEAK = 18.866 CFS UNIT VOLUME = .9993 B = 357.75 P60 = 2.1400
AREA = .007031 SQ MI IA = .40000 INCHES INF = .97000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 2 CODE = 1

PARTIAL HYDROGRAPH 101.02

RUNOFF VOLUME = 2.14048 INCHES = 2.6756 ACRE-FEET
PEAK DISCHARGE RATE = 66.95 CFS AT 1.500 HOURS BASIN AREA = .0234 SQ. MI.

* La Cueva Village Unit 1, Lots 19-35, 38-44 (WEST BASIN)

COMPUTE NM HYD ID = 3 HYD NO = 101.03 AREA = 0.006525
PER A = 0 PER B = 20 PER C = 20 PER D = 60
TP = -0.133333333 HR MASS RAIN =-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 15.453 CFS UNIT VOLUME = .9993 B = 526.28 P60 = 2.1400
AREA = .003915 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

K = .121314HR TP = .133333HR K/TP RATIO = .909858 SHAPE CONSTANT, N = 3.892621
UNIT PEAK = 6.8110 CFS UNIT VOLUME = .9980 B = 347.95 P60 = 2.1400
AREA = .002610 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 3 CODE = 1

PARTIAL HYDROGRAPH 101.03

RUNOFF VOLUME = 1.97426 INCHES = .6870 ACRE-FEET
PEAK DISCHARGE RATE = 17.65 CFS AT 1.520 HOURS BASIN AREA = .0065 SQ. MI.

= BASIN A

* La Cueva Village Unit 1, Lots 1-18, 36-37, 44-59 (East-Basin)

COMPUTE NM HYD ID = 4 HYD NO = 101.04 AREA = 0.010454 SQ MI
PER A = 0 PER B = 20 PER C = 20 PER D = 60
TP = -0.1333333333 HR MASS RAIN = -1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.758 CFS UNIT VOLUME = .9996 B = 526.28 P60 = 2.1400
AREA = .006272 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

K = .121314HR TP = .133333HR K/TP RATIO = .909858 SHAPE CONSTANT, N = 3.892621
UNIT PEAK = 10.912 CFS UNIT VOLUME = .9988 B = 347.95 P60 = 2.1400
AREA = .004182 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 4 CODE = 1

PARTIAL HYDROGRAPH 101.04

RUNOFF VOLUME = 1.97426 INCHES = 1.1007 ACRE-FEET
PEAK DISCHARGE RATE = 28.26 CFS AT 1.520 HOURS BASIN AREA = .0105 SQ. MI.

BASIN B

* Add East and West La Cueva Village Basins

ADD HYD ID = 5 HYD NO = 101.05 ID I = 3 ID II = 4

PRINT HYD ID = 5 CODE = 1

PARTIAL HYDROGRAPH 101.05

RUNOFF VOLUME = 1.97426 INCHES = 1.7878 ACRE-FEET
PEAK DISCHARGE RATE = 45.91 CFS AT 1.520 HOURS BASIN AREA = .0170 SQ. MI.

* Tract C (Shopping Center)

COMPUTE NM HYD ID = 6 HYD NO = 101.06 AREA = 0.0204 SQ MI
PER A = 0 PER B =3.3 PER C = 6.7 PER D = 90
TP = -0.133333333 HR MASS RAIN = -1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 72.468 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 2.1400
AREA = .018360 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

K = .117107HR TP = .133333HR K/TP RATIO = .878302 SHAPE CONSTANT, N = 4.041902
UNIT PEAK = 5.4767 CFS UNIT VOLUME = .9975 B = 357.95 P60 = 2.1400
AREA = .002040 SQ MI IA = .39950 INCHES INF = .96860 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .020000

PRINT HYD ID = 6 CODE = 1

PARTIAL HYDROGRAPH 101.06

RUNOFF VOLUME = 2.42250 INCHES = 2.6357 ACRE-FEET
PEAK DISCHARGE RATE = 63.19 CFS AT 1.500 HOURS BASIN AREA = .0204 SQ. MI.

```
* Tract B (La Cueva Village Unit 2, Lots 1-16)
* DEVELOPED ULTIMATE CONDITION *

COMPUTE NM HYD       ID = 7 HYD NO = 101.07  AREA = 0.00485719 SQ MI
                     PER A = 0  PER B = 20  PER C = 20 PER D = 60
                     TP = -0.1333333333 HR  MASS RAIN = -1


    K =   .072667HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   11.503    CFS   UNIT VOLUME =    .9991       B =   526.28      P60 = 2.1400
    AREA =      .002914 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

    K =   .121314HR    TP =   .133333HR    K/TP RATIO =   .909858     SHAPE CONSTANT, N =  3.892621
    UNIT PEAK =   5.0701    CFS   UNIT VOLUME =    .9974       B =   347.95      P60 = 2.1400
    AREA =      .001943 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

PRINT HYD            ID = 7 CODE = 1

                                PARTIAL HYDROGRAPH   101.07


    RUNOFF VOLUME =     1.97427 INCHES     =        .5114 ACRE-FEET
    PEAK DISCHARGE RATE =      13.14 CFS  AT   1.520 HOURS   BASIN AREA =   .0049 SQ. MI.


* Add to get total flow from La Cueva Village

ADD HYD              ID = 8 HYD NO = 101.08  ID I = 5 ID II = 7

PRINT HYD            ID = 8 CODE = 1

                                PARTIAL HYDROGRAPH   101.08


    RUNOFF VOLUME =     1.97426 INCHES     =       2.2992 ACRE-FEET
    PEAK DISCHARGE RATE =      59.05 CFS  AT   1.520 HOURS   BASIN AREA =   .0218 SQ. MI.


* Carmel / Holly Right of Way

COMPUTE NM HYD       ID = 9 HYD NO = 101.09 AREA = 0.00609 SQ MI
                     PER A = 0  PER B = 0  PER C = 11  PER D = 89
                     TP = -0.1333333333 HR   MASS RAIN = -1


    K =   .072667HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   21.393    CFS   UNIT VOLUME =    .9995       B =   526.28      P60 = 2.1400
    AREA =      .005420 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000


    K =   .108940HR    TP =   .133333HR    K/TP RATIO =   .817047     SHAPE CONSTANT, N =  4.373949
```

BASIN C

= Total Flow (Design Flow For Storm Drain)

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/10/1996
INPUT FILE = 940956F.INP USER NO.= J_MORTEN.I01

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
START										
RAINFALL TYPE= 2										TIME= .0
										RAIN24= 3.10
COMPUTE NM HYD	101.02	-	2	.02344	66.95	2.676	2.14048	1.500	4.464	PER IMP= 70.0
COMPUTE NM HYD	101.03	-	3	.00653	17.65	.687	1.97426	1.520	4.226	PER IMP= 60.0
COMPUTE NM HYD	101.04	-	4	.01045	28.26	1.101	1.97426	1.520	4.224	PER IMP= 60.0
ADD HYD	101.05	3& 4	5	.01698	45.91	1.788	1.97426	1.520	4.225	
COMPUTE NM HYD	101.06	-	6	.02040	63.19	2.636	2.42250	1.500	4.840	PER IMP= 90.0
COMPUTE NM HYD	101.07	-	7	.00486	13.14	.511	1.97427	1.520	4.228	PER IMP= 60.0
ADD HYD	101.08	5& 7	8	.02184	59.05	2.299	1.97426	1.520	4.225	
COMPUTE NM HYD	101.09	-	9	.00609	18.93	.787	2.42335	1.500	4.857	PER IMP= 89.0
COMPUTE NM HYD	101.10	-	10	.00443	12.22	.467	1.97793	1.520	4.309	PER IMP= 54.0
COMPUTE NM HYD	101.11	-	11	.00115	3.60	.149	2.43614	1.500	4.895	PER IMP= 90.0
COMPUTE NM HYD	101.12	-	12	.02156	66.78	2.786	2.42250	1.500	4.839	PER IMP= 90.0
COMPUTE NM HYD	101.13	-	13	.00554	9.48	.303	1.02551	1.520	2.673	PER IMP= 12.0
COMPUTE NM HYD	101.14	-	14	.01605	49.71	2.073	2.42251	1.500	4.840	PER IMP= 90.0
FINISH										

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B Midway Park Blvd. NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-4250 FAX (505) 345-4254

JOB 1TU120
SHEET NO _____ OF _____
CALCULATED BY G.M. DATE 12/06/96
CHECKED BY _____ DATE _____
SCALE _____

STREET CAPACITY
LA CUEVA VILLAGE (46' R.O.W, 28' F-F)

Q_{100} (max) = 41 cfs at N.W. CORNER

USING Manning's Equation for normal depth, at
depth = 0.47', S=0.03', A_1=7.03 sf, P=28.94',
Q_{CAP} = 41.5 cfs

MAX DEPTH = 0.47'

⇒ EXPLORE HYDRAULIC JUMP POTENTIAL DUE TO LARGE NUMBER OF DRIVECUTS IN RESIDENTIAL SUBDIVISION

$V = Q/A_1 = 41.5/7.03 = 5.9$ fps

SINCE SECTION IS NON-RECTANGULAR, USE HYDRAULIC DEPTH $D_1 = A_1/\text{Topwidth}$

$D_1 = 7.03/28 = 0.25'$

$F_1 = V/\sqrt{gD} = 5.9/\sqrt{(32.2)(0.25)} = 2.08$

USING D.P.M. PLATE 22.3 E-1, RATIO OF TAILWATER DEPTH TO INITIAL DEPTH = 2.4

$D_2 = 2.4D_1 = 0.60$

CONVERTING HYDRAULIC DEPTH BACK TO NORMAL DEPTH: $A_2 = (D_2)(28) = 16.8$ sf

Y_2 @ A_2 = 0.85'

BECAUSE EQUIVALENT JUMP DEPTH CAN BE CONTAINED WITHIN R.O.W. AT A DEPTH OF LESS THAN 0.87', NO SPECIAL CONSIDERATIONS ARE REQUIRED.

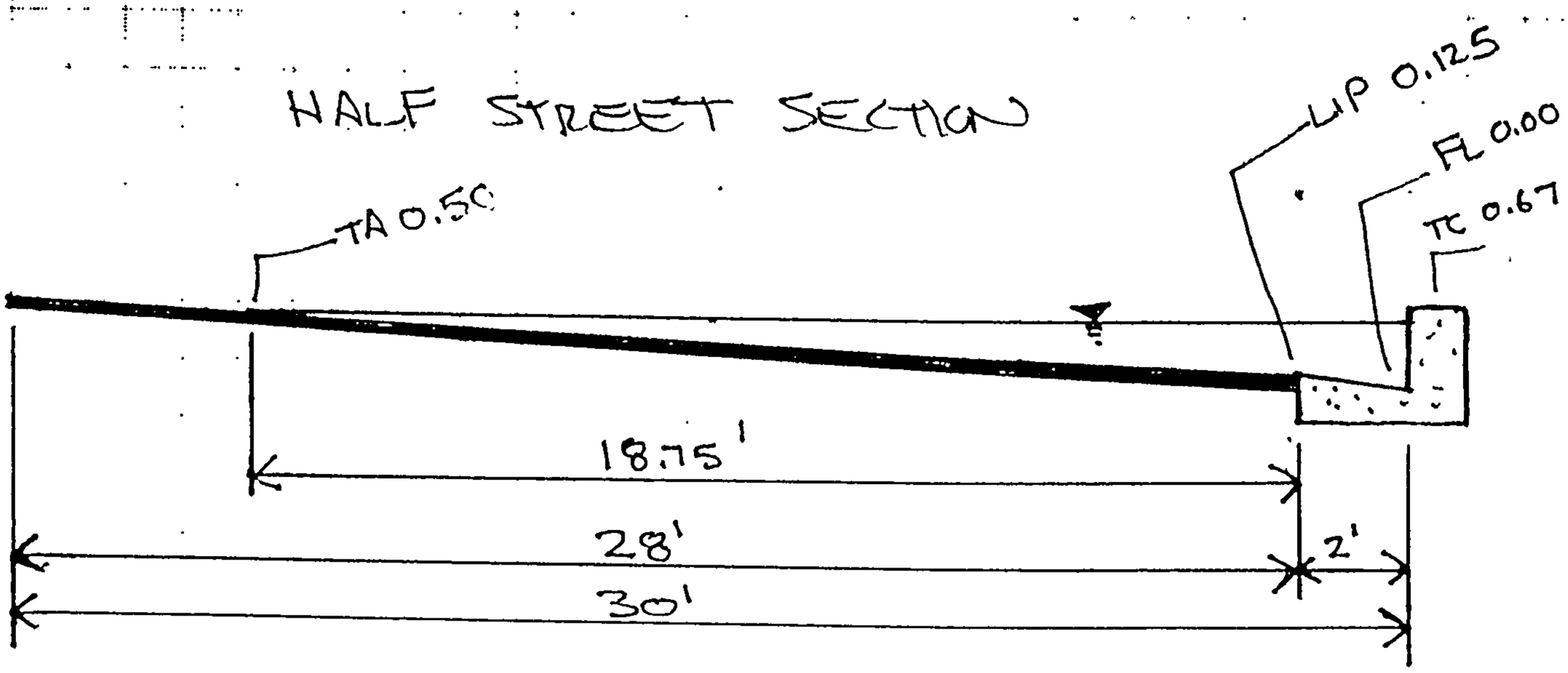
JEFF MORTENSEN & ASSOCIATES, INC.
6010-B Midway Park Blvd. NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-4250 FAX (505) 345-4254

JOB 96026
SHEET NO. ____ OF ____
CALCULATED BY G.M. DATE 12/06/96
CHECKED BY ____ DATE ____
SCALE ____

STREET CAPACITY
BARSTOW STREET (60' F-F)

COLLECTOR STREET MAXIMUM 10-YEAR DEPTH = 0.50 FT

HALF STREET SECTION



CAPACITY @ Depth = 0.50' (MANNINGS EQUATION)

AREA = 4.39 sf
P = 18.75 + 2.00 + 0.50 = 21.25 ft
R = A/P = 0.2066 $R^{2/3}$ = 0.3495
n = 0.017
S = 0.010 (minimum)

$Q_{CAP} = (1.49/n) A R^{2/3} S^{1/2}$ = 13.4 cfs (each half)
$Q_{BARSTOW}$ = (2)(13.4) = 26.8 cfs

Q_{100} Barstow = 3.6 cfs
By DPM, 10-year flow rate can be up to 26.8 cfs

THEREFORE, NO STORM DRAIN IS REQUIRED IN BARSTOW TO DRAIN STREET TO FUTURE CHANNEL

```
2345678901234567890
*
*    Window "G" Ultimate Conditions                    JMA # 940956
*                                                      April, 1997
*                                                      G.M. 486-5
*
*    5 - YEAR STORM
*
START                TIME = 0.0  PUNCH CODE = 0  PRINT LINES = -1
RAINFALL             TYPE = 2  RAIN QUARTER = 0.0
                     RAIN ONE = 1.21 IN RAIN SIX = 1.47 IN
                     RAIN DAY = 1.76 IN DT = 0.02

* Tract A (Apartments)
COMPUTE NM HYD       ID = 2  HYD NO = 101.02  AREA = 0.0234375
                     PER A = 0  PER B = 10 PER C = 20  PER D = 70
                     TP = -0.133333333 HR  MASS RAIN =-1

PRINT HYD            ID = 2  CODE = 1                    Basin A

* La Cueva Village Unit 1, Lots 19-35  39-44 (WEST BASIN)

COMPUTE NM HYD       ID = 3  HYD NO = 101.03  AREA = 0.006525
                     PER A = 0  PER B = 20 PER C = 20  PER D = 60
                     TP = -0.133333333 HR  MASS RAIN =-1

PRINT HYD            ID = 3  CODE = 1                    BASIN B

* La Cueva Village Unit 1, Lots 1-18, 26-27, 44-59 (East Basin)

COMPUTE NM HYD       ID = 4  HYD NO = 101.04  AREA = 0.010454 SQ MI
                     PER A = 0  PER B = 20  PER C = 20  PER D = 60
                     TP = -0.1333333333 HR  MASS RAIN = -1

PRINT HYD            ID = 4  CODE = 1

*  Add East and West La Cueva Village Basins

ADD HYD              ID = 5  HYD NO = 101.05  ID I = 3  ID II = 4

PRINT HYD            ID = 5  CODE = 1

* Tract C (Shopping Center)

COMPUTE NM HYD       ID = 6 HYD NO = 101.06  AREA = 0.0204 SQ MI
                     PER A = 0  PER B =3.3  PER C = 6.7  PER D = 90
                     TP = -0.133333333 HR MASS RAIN = -1

PRINT HYD            ID = 6  CODE = 1

* Tract B (La Cueva Village Unit 2, Lots 1-16)        BASIN C
*  DEVELOPED ULTIMATE CONDITION *

COMPUTE NM HYD       ID = 7 HYD NO = 101.07  AREA = 0.00485719 SQ MI
                     PER A = 0  PER B = 20  PER C = 20 PER D = 60
                     TP = -0.1333333333 HR  MASS RAIN = -1

PRINT HYD            ID = 7 CODE = 1
```

```
* Tract B (La Cueva Village Unit 2, Lots 1-16)
* DEVELOPED ULTIMATE CONDITION *

COMPUTE NM HYD      ID = 7 HYD NO = 101.07  AREA = 0.00485719 SQ MI
                    PER A = 0  PER B = 20  PER C = 20 PER D = 60
                    TP = -0.1333333333 HR  MASS RAIN = -1


    K =   .072667HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   11.503    CFS   UNIT VOLUME =    .9991       B =   526.28      P60 = 1.2100
    AREA =      .002914 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

    K =   .125541HR    TP =   .133333HR    K/TP RATIO =   .941560     SHAPE CONSTANT, N =  3.755235
    UNIT PEAK =   4.9326    CFS   UNIT VOLUME =    .9972       B =   338.51      P60 = 1.2100
    AREA =      .001943 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

PRINT HYD           ID = 7 CODE = 1

                                PARTIAL HYDROGRAPH   101.07


    RUNOFF VOLUME =      .93706 INCHES     =        .2427 ACRE-FEET
    PEAK DISCHARGE RATE =      6.59 CFS  AT   1.520 HOURS   BASIN AREA =   .0049 SQ. MI.


* Add to get total flow from La Cueva Village

ADD HYD             ID = 8 HYD NO = 101.08  ID I = 5 ID II = 7

PRINT HYD           ID = 8 CODE = 1

                                PARTIAL HYDROGRAPH   101.08


    RUNOFF VOLUME =      .93705 INCHES     =       1.0913 ACRE-FEET
    PEAK DISCHARGE RATE =     29.62 CFS  AT   1.520 HOURS   BASIN AREA =   .0218 SQ. MI.
```

= Total 5-yr flow

```
* Carmel / Holly Right of Way

COMPUTE NM HYD      ID = 9 HYD NO = 101.09 AREA = 0.00609 SQ MI
                    PER A = 0  PER B = 0  PER C = 11  PER D = 89
                    TP = -0.1333333333 HR   MASS RAIN = -1


    K =   .072667HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   21.393    CFS   UNIT VOLUME =    .9995       B =   526.28      P60 = 1.2100
    AREA =      .005420 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .020000

    K =   .108442HR    TP =   .133333HR    K/TP RATIO =   .813315     SHAPE CONSTANT, N =  4.396240
```

Window "G" Channel

VACANT LAND EXCHANGE AGREEMENT

This contract made this 27 day of March, 1997, between the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA") and Hoech Real Estate Corporation, a New Mexico Corporation ("HREC"):

Witnesseth: The parties agree to exchange, upon terms and conditions hereinafter set out, the following real properties:

HREC agrees to convey, sell, and grant to AMAFCA the real estate shown on Exhibit A attached hereto designated as Area 1, Area 2 and Area 3, to wit: Approximately 2.755 +/- acres of vacant land zoned according to the Window "G" Sector Development Plan (the "EXCHANGE PROPERTY").

AMAFCA agrees to convey, sell, and grant to HREC the real estate shown on Exhibit A attached hereto designated as Area 4, to wit: Approximately 0.6514 +/- acres of vacant land zoned according to the Window "G" Sector Development Plan (the "PROPERTY").

I. PROPERTY VALUES

The value of the EXCHANGE PROPERTY, based on a per sq. ft. unit cost to HREC in contingency purchase agreements, is the sum of approximately TWO HUNDRED SEVEN THOUSAND SIX HUNDRED THIRTEEN DOLLARS ($207,613). The value of the PROPERTY, based on a per sq. ft. unit cost to HREC in contingency purchase agreements is the sum of approximately FORTY NINE THOUSAND AND EIGHTY NINE DOLLARS ($49,089).

The value of the EXCHANGE PROPERTY and the value of the PROPERTY both equate to $1.73 +/- per sq. ft. which is the average price per square foot which HREC has agreed to pay pursuant to contingency purchase agreements for property which comprise the EXCHANGE PROPERTY. This value is acceptable to both HREC and AMAFCA, and substantiating documentation is on file at the AMAFCA or HREC offices.

The difference between the value and cost of the EXCHANGE PROPERTY, and the value and cost of the PROPERTY, have been considered as a part of the overall agreement entitled AGREEMENT NORTH DOMINGO BACA ARROYO DRAINAGE FACILITY WYOMING BLVD. TO BARSTOW ST. between AMAFCA and HREC ("WINDOW G AGREEMENT").

It is acknowledged by the parties that AMAFCA Policy 1993-9 with regard to the Disposal of Real Estate normally requires AMAFCA to obtain an appraisal on the subject properties. As recommended by its staff for the WINDOW G AGREEMENT, AMAFCA agrees to waive the appraisal requirement in-as-much as the value of the EXCHANGE PROPERTY is significantly greater than the value of the PROPERTY.

Initials: AMAFCA _____ HREC _____

II. TITLE

A. EXCHANGE PROPERTY

As soon as practicable after the execution of this agreement HREC shall, at HREC's expense, cause First American Title Company (Attn. Kathy Carrillo), to issue a commitment to insure title to the EXCHANGE PROPERTY in AMAFCA's name through an Owners Policy of Title Insurance in the face amount of the value of the EXCHANGE PROPERTY. All requirements by said title commitment shall be met at closing. Failure by either party to meet such requirements shall constitute a breach of this Agreement. AMAFCA shall have ten (10) days from receipt of the title commitment to examine the title to the EXCHANGE PROPERTY and to report to HREC in writing any valid objections thereto. Any exceptions to title shall be deemed to have been accepted unless reported to HREC in writing during said examination period. If AMAFCA objects to any exceptions to the title, HREC shall use due diligence to remove such exceptions at their own expense before the closing date, upon failure of which all rights and obligations hereunder may, at the election of AMAFCA, terminate and end; provided that AMAFCA may elect to consummate this transaction and acquire the EXCHANGE PROPERTY subject to any such exceptions.

HREC shall escrow executed Warranty Deed(s) which will convey merchantable title to AMAFCA. Owner's title insurance insuring title in AMAFCA's name in fee simple shall be delivered to AMAFCA as soon as practicable after closing.

B. PROPERTY

As soon as practicable after the execution of this agreement AMAFCA shall, at AMAFCA's expense, cause Lawyer's Title Company (Attn. Sue Dunworth), to issue a commitment to insure title to the PROPERTY in HREC's name through an Owners Policy of Title Insurance in the face amount of the value of the PROPERTY. All requirements by said title commitment shall be met at closing. Failure by either party to meet such requirements shall constitute a breach of this Agreement. HREC shall have ten (10) days from receipt of the title commitment to examine the title to the property and to report to AMAFCA in writing any valid objections thereto. Any exceptions to title shall be deemed to have been accepted unless reported to AMAFCA in writing during said examination period. If HREC objects to any exceptions to the title, AMAFCA shall use due diligence to remove such exceptions at their own expense before the closing date, upon failure of which all rights and obligations hereunder may, at the election of HREC, terminate and end; provided that HREC may elect to consummate this transaction and acquire the PROPERTY subject to any such exceptions.

AMAFCA shall escrow an executed Quitclaim Deed which will convey merchantable title to HREC. Owner's title insurance insuring title in HREC's name in fee simple shall be delivered to HREC as soon as practicable after closing.

III. SURVEYS

A. EXCHANGE PROPERTY. As soon as practicable after execution of this Agreement, HREC, at HREC's expense, shall obtain and deliver to AMAFCA ALTA Survey(s) of the EXCHANGE PROPERTY. AMAFCA and HREC shall both have ten (10) days to examine the survey(s) together with the title commitment(s) and exception documents and to notify HREC in writing of any objections thereto. In the event that AMAFCA shall so notify HREC of objections to the survey, and HREC is unable to satisfy AMAFCA's objections before the closing date, then this Agreement and all rights and obligations hereunder, at the election of AMAFCA, may terminate and end; provided that AMAFCA may elect to consummate this transaction and acquire the EXCHANGE PROPERTY subject to any such exceptions and without satisfaction of their objections.

B. PROPERTY. As soon as practicable after execution of this Agreement, HREC, at HREC's expense, shall obtain an ALTA Survey of the PROPERTY. HREC shall have ten (10) days to examine the survey together with the title commitment and exception documents and to notify AMAFCA in writing of any objections thereto. In the event that HREC shall so notify AMAFCA of objections to the survey, and AMAFCA is unable to satisfy HREC's objections before the closing date, then this Agreement and all rights and obligations hereunder, at the election of the HREC, may terminate and end; provided that HREC may elect to consummate this transaction and acquire the PROPERTY subject to any such exceptions and without satisfaction of their objections.

IV. PLATS

HREC, at HREC's expense, shall obtain final subdivision approval and recordation of a subdivision plat, acceptable to AMAFCA, pursuant to the provisions in the WINDOW G AGREEMENT. The parties agree to cooperate with each other in obtaining said subdivision approvals. This Agreement and the closing contemplated hereby is subject to and conditioned upon the parties first obtaining final subdivision approvals for the above referenced plat upon terms and conditions acceptable to the parties. Recording of said subdivision plat shall be concurrent with close of escrow.

V. PRORATIONS and CLOSING COSTS

Paving, sidewalk, sewer, and water assessments, if any, to be paid by the respective property owner at closing. Rent, interest, hazard, flood, water, sewer, and garbage charges, if applicable, are to be prorated to closing date. Each party will pay all outstanding Real Estate Taxes, and will escrow with each respective Title Company the amount of estimated taxes for the current tax year, for their respective property. HREC shall pay the Title Commitment Fee, the Title Company Closing Fee, deed preparation costs, recording fees and the applicable title insurance premium, etc. for conveyance of the EXCHANGE PROPERTY. AMAFCA shall pay the Title Commitment

Fee, the Title Company Closing Fee, deed preparation costs, recording fees and the applicable title insurance premium, etc. for conveyance of the PROPERTY.

VI. CLOSING DATE, POSSESSION

Closing shall take place at a time and place mutually agreeable by the parties. The parties agree to give possession of the respective properties to the other on the date of closing at 5:00 pm, and certifies that the property will be in the same condition as of the date of this Agreement. All parties undersigned agree to complete closing within 72 hours after notification that required closing papers are ready.

VII. DEFAULT

Time is of the essence. If any payment or any other condition hereof is not made, tendered or performed by either AMAFCA or HREC as required, then this Agreement may be terminated at the option of the party who is not in default. In the event of such default by AMAFCA, and HREC elects to treat this Agreement as terminated it shall so notify AMAFCA of such election to terminate in writing whereupon HREC shall have no further rights under this Agreement. In the event of such default by HREC and AMAFCA elects to treat this Agreement as terminated, it shall so notify HREC of such election to terminate in writing whereupon AMAFCA shall have no further rights under this Agreement. In the event, however, the non-defaulting party elects to treat this Agreement as being in full force and effect, the non-defaulting party shall have the right to an action for specific performance and/or damages.

VIII. ENTIRE AGREEMENT

This Agreement is intended to be and constitute the entire agreement between the parties as of the date of execution and it may be amended only by an instrument in writing signed by the parties. This Agreement shall be binding upon and inure to the benefit of the parties, their heirs, executors, administrators, successors, and assigns.

IX. GOVERNMENTAL APPROVALS AND OTHER CONDITIONS

A. This Agreement and the closing contemplated hereby is subject to and conditioned upon the approval of the Board of Directors of the Albuquerque Metropolitan Arroyo Flood Control Authority ("Board") by no later than March 31, 1997. This Agreement shall not be binding upon AMAFCA until counter-signed by the chairman or other official of its Board. HREC acknowledges that Board approval of this transaction will be in accordance with the published policies governing AMAFCA real estate transactions, except for the waiver of appraisal as referenced in paragraph I.A. of this Agreement.

Initials: AMAFCA_____ HREC_____

B. The parties acknowledge that HREC is acquiring the PROPERTY to combine it with adjacent properties for a mixed use development. This Agreement and the closing contemplated hereby is subject to and conditioned upon HREC first obtaining the appropriate governmental approvals of the development, including a drainage plan, contemplated by HREC upon terms and conditions acceptable to HREC. AMAFCA agrees to cooperate with HREC in its efforts to obtain the necessary governmental approvals for the development of the property in the manner envisioned by HREC, including, but not limited to, promptly executing any plats or any other documents which are required by the applicable governmental authorities.

C. HREC Represents:

1) That it is not the current fee owner of the EXCHANGE PROPERTY;

2) That it has entered into contingency purchase agreements for the purchase and sale of the EXCHANGE PROPERTY with the fee owners thereof for the purpose of this transaction, and;

3) That the Purchase Price of the EXCHANGE PROPERTY in the contingency purchase agreements by and between HREC and the fee owners thereof is the same as the value specified in Paragraph I of this Agreement. This Agreement and the closing contemplated hereby is subject to and conditioned upon the concurrent close of escrow of this transaction and the transactions by and between HREC and the fee owners of the EXCHANGE PROPERTY.

D. In the event that AMAFCA is unable to satisfy the condition specified in subparagraph IX A. hereinabove, it shall so notify HREC in writing, whereupon this Agreement and all the rights and obligations of the parties hereunder shall terminate and end. In the event that HREC is unable to satisfy the conditions specified in subparagraphs B and/or C hereinabove, it shall so notify AMAFCA in writing, whereupon this Agreement and all the rights and obligations of the parties hereunder shall terminate and end.

X. RIGHT OF ENTRY

AMAFCA and HREC hereby grant permission, each to the other, to enter onto the respective premises to conduct those studies, surveys, inspections, and any other due diligence investigations deemed necessary by each party. The parties further agree to provide the other with any and all documentation it has on their respective properties including but not limited to: surveys, geotechnical reports, environmental studies, and any engineering studies or reports.

XI. DISPUTES

If disputes arise regarding the terms of this Agreement, the parties agree to seek resolution through binding arbitration under AAA Arbitration Guidelines. If it becomes necessary for any party to take legal action to enforce any term of this agreement, the losing party shall be liable for all costs incurred in such legal action, including reasonable attorney's fees.

XII. NOTICES

Whenever, under the terms of this Agreement, a written notice is required, or whenever a written notice or communication is sent, the same shall be accomplished by hand delivery, or by certified or registered mail, return receipt requested, postage prepaid, or by telegram sent by Western Union Telegraph Company, addressed as follows:

AMAFCA: AMAFCA Attn: Larry Blair
2600 Prospect Ave. NE
Albuquerque, NM 87107

HREC: Hoech Real Estate Corporation
6729 Academy Rd. NE Suite B
Albuquerque, New Mexico, 87109

Notices served by mail shall be deemed given three (3) days after deposited with the United States Postal Service. Any change of address shall not be effective unless served upon the parties in the same manner as a notice referred to herein.

XIII. GOVERNING LAW

This Agreement shall be interpreted in accordance with the laws of the State of New Mexico.

XIV. BROKERAGE

The parties agree that the transaction hereby contemplated was brought about by the efforts of Donald G. Hoech and that the parties have dealt with no other brokers in connection with the transaction. It is further acknowledged by the parties that AMAFCA does not agree to pay any brokerage commission with regard to this transaction. HREC agrees to hold AMAFCA harmless from any claim for real estate brokerage commissions asserted by any other party as a result of this transaction.

Hoech Real Estate Corporation:

Donald G Hoech
By: Donald G. Hoech, its President

Date: 2-27-97

Albuquerque Metropolitan Arroyo Flood Control Authority:

Recommended By:

Larry A. Blair

By: Larry A. Blair, its Executive Engineer

Date: 3/27/97

AMAFCA BOARD OF DIRECTORS APPROVAL

Michael Murphy

By: Michael Murphy, Chair

Date: 3/27/97

Linda Olmsted

By: Linda Olmsted, Secretary-Treasurer

Date: 3/27/97

AGREEMENT
NORTH DOMINGO BACA ARROYO DRAINAGE FACILITY
WYOMING BLVD. TO BARSTOW ST.

This Agreement is entered into this 27 day of March, 19 97 by and between the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) and Hoech Real Estate Corporation (HREC) a New Mexico Corporation.

RECITALS:

1. Whereas, AMAFCA's North and South Domingo Baca Arroyo and Paseo del Norte Corridor Drainage Management Plan (DMP), adopted in 1992, recommended a lined channel from the new Lower North Domingo Baca Arroyo Detention Dam at Louisiana, eastward to Ventura Street; and

2. Whereas, construction of a channel from Wyoming to Barstow will accomplish about 40 percent of the recommended channelization; and

3. Whereas, the Window G Sector Development Plan adopted May 6, 1996 by the City of Albuquerque (COA) Twelfth Council, and approved by the Mayor, Martin T. Chavez on June 7, l 996 sets forth a drainage management plan, the key element of which is the soil cement lining of the North Domingo Baca Arroyo from Wyoming Blvd. to Barstow St., (the "Project"); and

4. Whereas, AMAFCA Resolution 1982-4 Cost-Sharing with Land Owners, provides for the private sector to share in the cost of flood control facilities; and

5. Whereas, recognizing the value of such a PROJECT, AMAFCA programmed funds for a cost-shared PROJECT in its annual Project Schedule since 1995; and

6. Whereas, the PROJECT is appropriate for AMAFCA, in that it:

   a. Is consistent with AMAFCA's mission

b. Deals with a major arroyo which was addressed in AMAFCA's DMP

c. Channelizes the North Domingo Baca Arroyo for eventual delivery to the Lower Domingo Baca Dam.

d. Provides flood protection to existing development in Nor Este Manor and adjacent streets.

e. Provides a flood-control channel capable of accepting future fully developed flows.

f. Removes approximately 14.4 acres from the flood plain.

7. Whereas, AMAFCA has the operational capability and staffing to contract for the construction of the PROJECT, with construction anticipated to begin in the fall of 1997, and

8. Whereas, said PROJECT also offers opportunities for other purposes, such as open space, parks, trails, and other appropriate public uses, subject to the primacy of the drainage function; and

9. Whereas, HREC is proposing development of portions of the Window G Sector Development Plan comprising some 32 acres, to be built in the 1997-1999 time frame; and

10. Whereas, HREC proposes that it would be in the public interest for AMAFCA to construct the PROJECT on a cost-sharing basis as set forth in Exhibit A; and as set forth in paragraphs 1 and 2 below.

11. Whereas, the AMAFCA Board of Directors at its September 1995 and December 1996 Regular Meetings, considered the cost-sharing concept.

NOW THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. AMAFCA agrees to:

a. Construct a soil cement drainage channel in such a configuration as to serve as a drainage facility for the North Domingo Baca Arroyo from Barstow to 20 feet

west of Wyoming at an approximate cost of $1,059,000 (which includes construction, construction engineering, design, C/LOMR and contingency).

b. Commence construction in the fall of 1997 or after a CLOMR approval is received from the FEMA, whichever occurs later.

c. Operate and maintain the completed PROJECT.

d. Deed, to HREC, in exchange for property referenced in paragraph 2.a.(3) below, that portion of former Tract B- 1, Nor Este Manor, consisting of .6514 acres deeded to AMAFCA at no cost that falls south of the proposed channel right-of-way and identified as area 4 on Exhibit B.

e. Provide appropriate license to COA for recreation/open space use along the channel if acceptable to the COA.

f. Upon receipt by AMAFCA, of a sum equal to AMAFCA's purchase price for lots 19 through 25, exclusive Block 7, Tract 2, Unit 3 of North Albuquerque Acres, said purchase price multiplied by a factor equal to five percent interest, compounded annually, since June 1994. AMAFCA shall convey title to said lots directly to the City of Albuquerque to meet HREC Tract A, detached Open Space credit requirements. However such conveyance shall reserve to AMAFCA a blanket drainage easement, and shall also have a reversion clause such that the lots must be used for public purpose. It is understood that the number of lots to be conveyed may be adjusted based upon actual requirements which will be determined at the time of site plan approval.

2. HREC agrees to:

a. Provide to AMAFCA the following:

1) Channel designs for fully developed conditions approved by AMAFCA and the

COA and ready to bid, construction plans, contract documents and specifications, (estimated cost $85,500).

2) All engineering necessary for CLOMR and LOMR submissions approved by FEMA (estimated cost $24,500).

3) Deeds, in exchange for property referenced in paragraph l.d above, to the following land parcels for channel right-of-way (ROW) consisting of approximately 2.75 acres, with an approximate cost to HREC of $208,000:

a) That portion of land identified as Area 1, Exhibit B

b) That portion of land identified as Area 2, Exhibit B

c) That portion of land identified as Area 3, Exhibit B

4) The amount of $442,000 in bank guaranteed funds prior to award of a construction contract by AMAFCA. It is understood that $41,000 of this amount is contingency, and any, or all of the $41,000 not needed (as determined by AMAFCA) will be returned to HREC.

b. Prepare plat of areas between Wyoming and Barstow dedicating in fee the necessary ROW for the PROJECT, and upon approval of the COA, record said plat with the Bernalillo County Clerk prior to construction of the PROJECT.

c. Provide necessary easements for construction of the PROJECT.

d. Provide a phasing plan for development of Window "G" land parcels that will contribute flows to the proposed channel. Said plan will address timing issues and constraints on development tied to channel development and construction of the Wyoming Blvd. bridge, and shall be approved by AMAFCA and the COA before award of such a contract for the PROJECT.

e. Obtain vacation approval of all Portions of Carmel Avenue which may be needed for the

Project and convey or cause to be conveyed to AMAFCA said vacated portions of Carmel Avenue.

f. Obtain approval from the COA for outfall of channel on COA property west of Wyoming including approval from the COA for AMAFCA to operate and maintain this outfall in the interim until the COA park is developed

g. Obtain approval of CLOMR and any required submittals to FEMA.

3. Both Parties agree as follows:

a. The facilities and ROW described herein have the primary purpose of conveying and managing storm water flows, and other interests granted by either party shall be subservient to that purpose.

b. This Agreement does not relieve HREC of the requirement to construct (or financially guarantee construction of) such facilities that the COA may deem necessary.

c. Disputes under this Agreement will be referred to binding arbitration under the provisions of the New Mexico Uniform Arbitration Act.

d. This Agreement may not be assigned by either party without the written consent of the other party, which consent shall not be unreasonably withheld.

e. Except as otherwise specifically provided herein, this Agreement shall be governed by, construed and enforced in accordance with the laws of the State of New Mexico.

f. All notices with respect to this Agreement shall be in writing and shall be delivered personally, sent via confirmed telefax, or sent postage prepaid by United States mail certified mail return receipt requested, to the addresses set forth below or such other addresses as hereafter specified in writing by one party to the other:

Albuquerque Metropolitan Arroyo Flood Control Authority 2600 Prospect, NE Albuquerque, NM 87107

FAX: 884-0214

g. This Agreement contains the entire Agreement between the parties hereto and all prior understandings, oral or in writing, by the parties hereto with respect to this Agreement. No variations, modifications, supplements, waivers or changes herein or hereof shall be binding upon any party hereto unless set forth in a document duly executed by or on behalf of such party.

h. If any provision of this Agreement of the application thereof to any person or circumstance shall be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provisions to other persons or circumstance shall not be affected thereby and such provisions shall be enforced to the greatest extent permitted by law. In the event any action is instituted by any party for the purpose of enforcing or interpreting any provision of this Agreement, the prevailing party in such action shall be entitled to its reasonable attorney's fees and costs.

j. This Agreement shall inure to the benefit of and be binding upon the undersigned parties and their respective successors and assigns. Whenever in this Agreement a reference to HREC is made, such reference shall be deemed to include a reference to successor owners of the PROPERTY.

k. Each individual signing for each of the parties hereunder, warrants and represents that he/she is an authorized agent of such party, on whose behalf he/she is executing this Agreement, and is authorized to execute the same.

l. Each party agrees to execute such other and further instruments and documents as may be necessary or proper in order to complete the transactions contemplated by this Agreement.

m. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, and said counterparts shall constitute but one and the same instrument which may sufficiently be evidenced by one counterpart.

n. Funds for this project will be addressed in the AMAFCA FY'98 budget, and may be contingent upon successful sale of General Obligation Bonds, anticipated to occur in mid-1997.

Executed the day and year first set out above.

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL
AUTHORITY, a political subdivision
of the State of New Mexico

ATTEST:

Linda Olmsted, Secretary-Treasurer
Board of Directors

Michael Murphy, Chair
Board of Directors

c wpwin61/ndb wp5

HOECH REAL ESTATE
CORPORATION, A New
Mexico Corporation

Donald G. Hoech, President

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on March 27, 1997 by Michael Murphy, Chair of the Albuquerque Metropolitan Arroyo Flood Control Authority, a political subdivision of the State of New Mexico.

My commission expires: 3/29/99

OFFICIAL SEAL
Gwendolyn A. Vigil
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 3/29/99

Notary Public

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on March 27, 1997 by Donald G. Hoech, President of Hoech Real Estate Corporation, a New Mexico Corporation.

My commission expires:
July 8, 2000

Notary Public