AMENDED

DRAINAGE PLAN

for

UNIVERSITY BRANCH
NEW MEXICO EDUCATORS
FEDERAL CREDIT UNION

ALBUQUERQUE, NEW MEXICO

BPLW Project Number: 92049

July 29, 1993

PREPARED BY:

Mr. Jeffrey R. Bergmann, PE #10853

BPLW

Architects & Engineers, Inc.

Designing to Shape the Future

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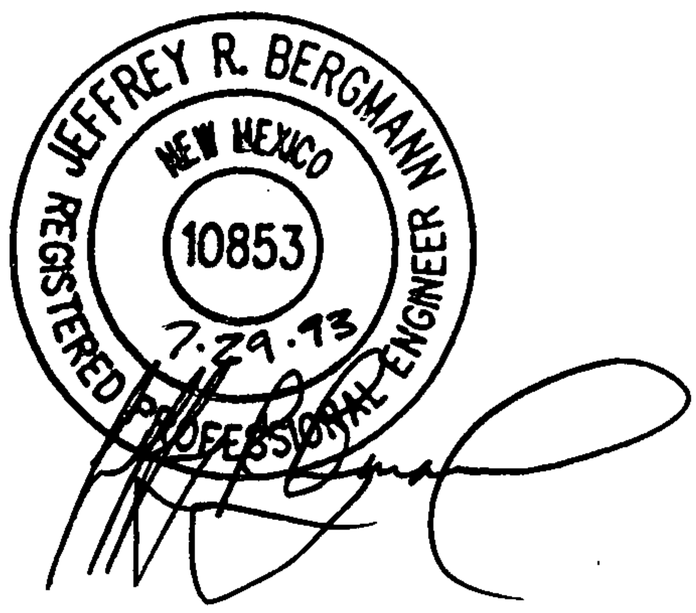

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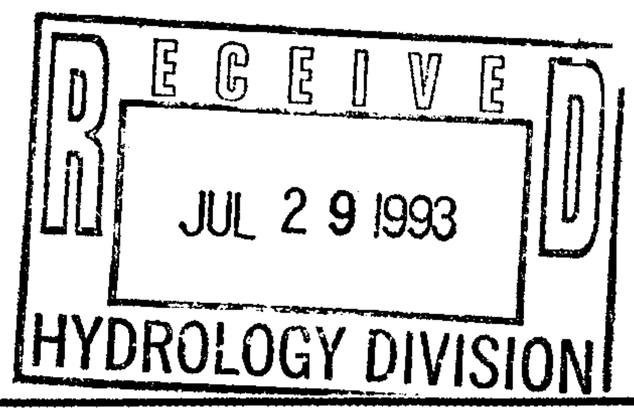

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NEW MEXICO EDUCATORS FEDERAL CREDIT UNION
ALBUQUERQUE, NEW MEXICO
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NEW MEXICO EDUCATORS FEDERAL CREDIT UNION
ALBUQUERQUE, NEW MEXICO
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1. Existing Conditions:

The project site is located on the north side of Lomas Boulevard at Buena Vista. Currently, a large offsite area to the north and east of the project site drains through the site. See the "Offsite Drainage Plate" in the map pocket of this report. All the offsite areas are owned by the University of New Mexico. There is a medium size retention/detention pond along the north property line of the site. See the "Onsite Existing Conditions" map in the pocket at the end of this report. This pond partially mitigates flow rates and volumes for the offsite areas. The discharge from the pond is to the southwest back onto University property and then into Lomas Boulevard.

2. Existing Hydrology:

The Offsite Drainage Plate shows the existing drainage basin boundaries and the path of the farthest reach for each major basin. Appendix A contains the Time of Concentration calculations for each basin. The chart below summarizes the physical properties of each basin.

EXISTING BASIN PROPERTIES

Basin	Area (acres)	%A	%B	%C	%D
OS-1A	1.07	0	0	95	5
OS-1B	2.05	0	0	32	68
OS-2A	1.19	0	0	0	100
OS-2B	1.72	0	0	9	91
OS-3A	10.88	0	25	5	70
OS-3B	1.06	0	0	0	100
OS-4	0.72	0	0	11	89
ONSITE*	1.50	0	0	56	44

* The existing onsite area includes the west portion of Rupert's Plumbing's storage yard since it sheet flows to the west.

The existing conditions were modeled using the AHYMO program to determine the existing street flow depths at analysis point AP-1 on Lomas Boulevard just west of our site. Appendix B contains the volume/discharge calculations for the existing pond on the north side of the site. Appendix C contains the results of the existing conditions AHYMO runs.

The Albuquerque Master Drainage Study (AMDS), Volume 1 contains an analysis point (#AP 139) on Lomas just west of Yale Boulevard. At this point the total 100 year storm flow was indicated as 101 cfs with 60 cfs carried north in an underground storm drain (from the intersection to the North Diversion Channel). This implies that during the 100 year storm 41 cfs will be carried west in Lomas Boulevard as surface flows (which will be split more or less evenly between the north and south lanes). During the 10 year storm, the AMDS indicates that all flows are intercepted by the storm drain at Yale.

To obtain the total flow at point AP-1, west of our site, the AHYMO modeled flows must be combined with the upstream flows entering the project area at AP-2. The upstream flows of 41 cfs must be delayed before adding them to the HYMO output to account for routing delays. If the delay is assumed to be 10 minutes, the peak 100 year flows at AP-1 will be as follows:

a) North Lanes: 41 cfs/2 plus 14.1 cfs (10 mins beyond the HYMO time to peak) = 34.6 cfs.

b) South Lanes: 41 cfs/2 plus 22.6 cfs (10 mins beyond the HYMO time to peak) = 43.1 cfs.

For the existing 10 year storm, there are no flows from upstream and the HYMO runs show the peak flows as follows:

a) North Lanes: 5.6 cfs

b) South Lanes: 27.0 cfs.

The survey map and calculations in Appendix D show that the existing flow depths during the 10 year storm are 0.26' and 0.47' for the north and south lanes respectively, and during the 100 year storm, they are 0.52' for the north lanes and 0.55' for the south lanes. It should be noted that the existing 10 year flow depth of 0.47' in the south lanes does not leave one driving lane clear of flowing water as required by DPM standards.

3. **Proposed Development:**

The project's construction will fill in the pond along the north property line and give the project site and the UNM property to the north free discharge to Lomas. This will slightly increase the street flows in Lomas.

After the development, basins OS-2A, OS-2B and OS-1B will drain through the project site and only basin OS-1A will drain across basin OS-4. The historic flow pattern had the project site and all the above basins draining across basin OS-4 since the existing pond discharges in that direction. The flows from basins OS-2A, OS-2B, OS-1B and the project site will be introduced into Lomas Boulevard approximately 200 feet upstream of the historic point; this does not represent a significant change from the historic condition.

The onsite Grading Plan (see map pocket) has been designed to create a small settling basin in the west parking lot island. The purpose of this settling pond is to trap minor nuisance flows and some of the oil and grit from the parking lot during very light rainfalls or landscape irrigation overspraying. This 18" deep settling pond has been designed to carry 2234 cf of storage volume. With the use of a grated channel at the south end of this pond, flows outside the pond limits will be conveyed to a 12" rundown and ultimately to a 12" sidewalk culvert at Lomas. This will eliminate any "standing water" in the parking area(s) of this site.

4. Proposed Hydrology:

The developed physical properties of each basin are summarized in the chart below:

DEVELOPED BASIN PROPERTIES

Basin	Area (Acres)	%A	%B	%C	%D
OS-1A	No change from existing				
OS-1B	No change from existing				
OS-2A	No change from existing				
OS-2B	No change from existing				
OS-3A	No change from existing				
OS-3B	No change from existing				
OS-4	No change from existing				
Onsite	1.50	0	14	0	86

The calculations in Appendix D show that in the 100 year storm, Lomas Boulevard has a capacity of about 47.2 cfs in each set of lanes. As mentioned previously, the AMDS indicates that 41 cfs is currently carried west on Lomas during the 100 year storm. This flow is split between the north and south driving lanes. After construction, the project site and offsite basins will create 28 cfs of flow (see Appendix E).

(28.6 cfs) + (1/2)(41 cfs) = 49.1 cfs

(49.1 cfs) - (47.2 cfs) = 1.9 cfs
(flow to be retained on site)

The excess 1.9 cfs (V=2000 CF) of flow will easily be retained in the 2234 cubic foot - 18" deep planter area on site.

The calculations in Appendix F show that in the 10 year storm, Lomas Boulevard has a capacity of 15.2 cfs in the north lane, with retaining a dry 12' lane. As mentioned previously, 5.6 cfs is currently carried in the south lane during the 10 year storm. Therefore, the total capacity of the north lane of Lomas is 15.2-5.6 = 9.6 cfs (see Appendix F).

(18.7 cfs) - (9.6 cfs) = 9.1 cfs

This would require a total storage volume of 10,769 cf. The total ponding volume available is 6935 cf (see Appendix I). The total available volume includes: 3259 cf from the wier area, 2234 cf (retention) inside the 18" deep cobbled planter area on-site, and 1442 cf of ponding in the parking area adjacent and above the cobbled planter area.

In order to convey the additional flows to the deficit in the pond volume, a total discharge of 11.8 cfs is requested (2.2 cfs variance). The 10 year volume associated with the 11.8 cfs is 6890 cf. Of this 6890 cf volume, 2234 cf will be retained in the 18" deep cobbled planter area as mentioned above. The remaining 4656 cf will be detained in the combined wier and parking pond areas with a controlled discharge rate of 2 cfs into the north lane of Lomas Boulevard via a 12" wide sidewalk culvert (see details 1-4 sheet C5.6). The remaining .2 cfs of the requested 2.2 cfs variance will combine with the allowable 9.6 cfs discharge via the west 36' wide drivepad. The additional 2.2 cfs will reduce the 12' Lomas dry drive lane to 10.6' (see Appendix F).

5. Proposed Onsite Drainage Improvements:

At the northeast corner of the site, a driveway and storm culvert are being constructed at analysis point AP-4. The flows from basin OS-2B must be conveyed around/under the north end of the driveway without flooding the storage yard of Rupert's Plumbing. The calculations in Appendix H show that the proposed design will function properly.

At analysis point AP-5, the offsite flows from basins OS-1B, OS-2A and OS-2B must penetrate the retaining wall on the north property line. The 100 year flow (from AHYMO run) at this point is 22.1 cfs. A series of 8" x 8" holes in the wall are proposed to convey the flows through the wall. These orifice holes will be made by forming an 8"x8" opening in the wall's construction. If the water level is at the top of the hole, each opening can convey 1.23 cfs ($Q=0.60\ A[2gH]^{1/2}$). Nineteen (19) openings are proposed for a total capacity of 23.4 cfs.

The west driveway to the site and the associated low flow rundown channel are designed to convey the flows at analysis point AP-6 out to the street. The AHYMO run indicates a peak flow of 28.65 cfs at this location. The 7" deep single 24" sidewalk culvert will convey a controlled release rate of 2 cfs (see Appendix I). The balance of the flows (26.65 cfs) must be conveyed out the 36' wide west driveway. The calculations in Appendix "H" show that when the driveway flows are 8" deep at the west edge, 26.65 cfs can be conveyed. This depth is contained within the paved areas of the site by having 8" to 12" high on-site curbs west of the driveway and will not wash out any landscaping.

6. Summary:

The project will greatly improve the safety of the area by eliminating an old unfenced retention pond that is more than 18" deep. The design of the project for free discharge into Lomas satisfies all the pertinent DPM criteria except flow depth in the 10 year storm on the north side of Lomas. The table below summarizes the before and after development conditions on Lomas at analysis point number one:

	EXISTING		DEVELOPED	
	North Lanes	South Lanes	North Lanes	South Lanes
Q100	34.6 cfs	43.1 cfs	41.1 cfs	43.1 cfs
Q100	0.52 ft	0.55 ft	0.55 ft	0.55 ft
D100	3.8 fps	4.3 fps	4.1 fps	4.3 fps
Q10	5.6 cfs	27.0 cfs	25.8 cfs	27.0 cfs
D10	0.26 ft	0.47 ft	0.46 ft	0.47 ft
V10	2.5 fps	3.7 fps	3.7 fps	3.7 fps

Sheets GC.1, C1.2, C2.1, C5.2 and C5.4 contain details of work to be performed both on-site and in the street ROW (S.O. 19 permit).

APPENDIX A

BPLW

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63 East Main Street
Suite 602
Mesa, AZ 85201
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Project NMEdFCU - University Branch

Subject T_c for offsite basins

Project No. 92049 Date 4-17-93 By (dlw)

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____

Using SCS Upland Method:

Basin OS-1: Reach 1 - Sheet Flow, Paved
$K = 1.0$ $L = 440'$ $s = 0.014$

$V = 1.2$ fps $T_c = 6.1$ min

TOTAL: $T_c = 6.1$ min

Basin OS-2: Reach 1 - Sheet Flow, Paved
$K = 1.0$ $L = 220'$ $s = 0.029$

$V = 1.7$ fps $T_c = 2.2$ min

Reach 2 - Natural Channel/Street
$K = 3.0$ $L = 310'$ $s = 0.019$

$V = 4.1$ fps $T_c = 1.3$ min

TOTAL: $T_c = 3.5$ min

Basin OS-3: Reach 1 - Sheet Flow, Turf
$K = 0.7$ $L = 260'$ $s = 0.064$

$V = 1.8$ fps $T_c = 2.4$ min

Reach 2 - Street Flow, Paved
$K = 3.0$ $L = 520'$ $s = 0.004$

$V = 1.9$ fps $T_c = 4.6$ min

Copies to:

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Project _____

Subject _____

Project No. _____ Date _____ By _____

- ❑ Memorandum
- ❑ Telephone record
- ❑ Note to the file
- ❑ Minutes of meeting
- ❑ To be typed
- ❑ _____

Basin 05-3 (con)

Reach 3 - Street Flow, Paved
K = 3.0 L = 480' S = 0.038

V = 5.8 fps T_C = 1.4 min

Reach 4 - Street Flow, Paved
K = 3.0 L = 220' S = 0.015

V = 3.7 fps T_C = 1.0 min

TOTAL T_C = 9.4 min

Basin 05-4:

Reach 1 - Sheet Flow, Paved
K = 1.0 L = 300 S = 0.027

V = 1.6 fps T_C = 3.1 min

TOTAL T_C = 3.1 min

Copies to:

APPENDIX B

BPLW

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Project NMFd FCU - University Branch

Subject Exist Pond Volume / Discharge Curve

Project No. 92049 Date 4-19-93 By AHO

☐ Memorandum
☐ Telephone record
☐ Note to the file
☐ Minutes of meeting
☐ To be typed
☐ _____

A) Pond Volume Calcs:

Use truncated cone formula - $V = \frac{H}{3}(A_1 + A_2 + \sqrt{A_1 A_2})$

Elev	Area #	Volume CF	≤Vol AC-FT
01.50	0		0
		118	
02.00	710		0.00271
		1339	
03.00	2090		0.03345
		2816	
04.00	3610		0.09809
		4643	
05.00	5760		0.20468
		11,468	
06.00	18,360		0.46795
		9947	
06.50	21,470		0.69630

B) Pond Discharge Calcs:

The actual pond discharge point is a 15' wide weir at elevation 05.90 between two buildings on the west side of the site.

$Q = 2.65 L H^{1.5}$

Elev	Discharge
6.00	1.26 cfs
6.50	18.47 cfs

Copies to:

Page of

APPENDIX C

```
    AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
         RUN DATE (MON/DAY/YR) = 04/20/1993
         START TIME (HR:MIN:SEC) = 07:36:22     USER NO.= BPLW__NM.I01
         INPUT FILE = EX100YR.HYM

START                TIME=0 PUNCH CODE=0 PRINT LINES=-1
*  100 YEAR RETURN PERIOD STORM
RAINFALL             TYPE=1 QUARTER=0
                     ONE=2.01 SIX=2.35 DT=0.033333

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =    .033333 HOURS       END TIME =     5.999940 HOURS
                   .0000   .0016   .0033   .0049   .0066   .0084   .0102
                   .0120   .0139   .0158   .0178   .0199   .0219   .0241
                   .0263   .0286   .0309   .0333   .0358   .0384   .0411
                   .0439   .0467   .0497   .0529   .0561   .0596   .0631
                   .0669   .0709   .0751   .0807   .0866   .0930   .1066
                   .1372   .1842   .2517   .3438   .4648   .6192   .8114
                  1.0459  1.2628  1.3536  1.4303  1.4985  1.5605  1.6176
                  1.6706  1.7202  1.7667  1.8104  1.8516  1.8906  1.9274
                  1.9624  1.9955  2.0269  2.0568  2.0851  2.0915  2.0976
                  2.1034  2.1088  2.1141  2.1191  2.1239  2.1285  2.1330
                  2.1373  2.1414  2.1455  2.1494  2.1532  2.1569  2.1604
                  2.1639  2.1673  2.1707  2.1739  2.1771  2.1802  2.1832
                  2.1862  2.1891  2.1920  2.1948  2.1975  2.2002  2.2028
                  2.2054  2.2080  2.2105  2.2130  2.2154  2.2178  2.2202
                  2.2225  2.2248  2.2271  2.2293  2.2315  2.2336  2.2358
                  2.2379  2.2400  2.2420  2.2440  2.2460  2.2480  2.2500
                  2.2519  2.2538  2.2557  2.2576  2.2594  2.2613  2.2631
                  2.2649  2.2666  2.2684  2.2701  2.2718  2.2736  2.2752
                  2.2769  2.2786  2.2802  2.2818  2.2834  2.2850  2.2866
                  2.2882  2.2897  2.2913  2.2928  2.2943  2.2958  2.2973
                  2.2988  2.3002  2.3017  2.3031  2.3046  2.3060  2.3074
                  2.3088  2.3102  2.3116  2.3129  2.3143  2.3156  2.3170
                  2.3183  2.3196  2.3209  2.3222  2.3235  2.3248  2.3261
                  2.3273  2.3286  2.3299  2.3311  2.3323  2.3336  2.3348
                  2.3360  2.3372  2.3384  2.3396  2.3408  2.3420  2.3431
                  2.3443  2.3454  2.3466  2.3477  2.3489  2.3500

*  OS-1A & OS-1B
COMPUTE NM HYD       ID=1 HYD NO=101.0
                     DA=0.004875
                     PER A=0. PER B=0. PER C=54. PER D=46.
                     TP=0.133333 MASSRAIN=-1

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   8.8513    CFS   UNIT VOLUME =    .9980       B =   526.28      P60 = 2.0100
    AREA =      .002243 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .107473HR    TP =   .133333HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
    UNIT PEAK =   7.5727    CFS   UNIT VOLUME =    .9987       B =   383.55      P60 = 2.0100
    AREA =      .002633 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD            ID=1 CODE=20
```

PARTIAL HYDROGRAPH 101.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	2.4	4.000	.0	6.000	.0		
.667	.0	2.667	.2	4.667	.0	6.667	.0		
1.333	2.5	3.333	.1	5.333	.0				

RUNOFF VOLUME = 1.58210 INCHES = .4113 ACRE-FEET
PEAK DISCHARGE RATE = 12.06 CFS AT 1.500 HOURS BASIN AREA = .0049 SQ. MI.

* OS-2A & OS-2B
COMPUTE NM HYD ID=2 HYD NO=102.0
DA=0.004547
PER A=0. PER B=0. PER C=5. PER D=95.
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.050 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 2.0100
AREA = .004320 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107473HR TP = .133333HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = .65400 CFS UNIT VOLUME = .9814 B = 383.55 P60 = 2.0100
AREA = .000227 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=20

PARTIAL HYDROGRAPH 102.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	3.3	4.000	.1	6.000	.1		
.667	.0	2.667	.3	4.667	.1	6.667	.0		
1.333	4.1	3.333	.1	5.333	.1				

RUNOFF VOLUME = 2.06598 INCHES = .5010 ACRE-FEET
PEAK DISCHARGE RATE = 13.47 CFS AT 1.500 HOURS BASIN AREA = .0045 SQ. MI.

* ONSITE
COMPUTE NM HYD ID=3 HYD NO=100.0
DA=0.002344
PER A=0. PER B=0. PER C=56. PER D=44.
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.0709 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 2.0100
AREA = .001031 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107473HR TP = .133333HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = 3.7759 CFS UNIT VOLUME = .9972 B = 383.55 P60 = 2.0100
AREA = .001313 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=20

PARTIAL HYDROGRAPH 100.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.2	2.667	.1	4.000	.0	5.333	.0
.667	.0	2.000	1.2	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = 1.56236 INCHES = .1953 ACRE-FEET
PEAK DISCHARGE RATE = 5.76 CFS AT 1.500 HOURS BASIN AREA = .0023 SQ. MI.

ADD HYD ID=4 HYD NO=200.1 ID=1 ID=2
ADD HYD ID=4 HYD NO=200.2 ID=4 ID=3
PRINT HYD ID=4 CODE=20

PARTIAL HYDROGRAPH 200.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	6.9	4.000	.1	6.000	.2		
.667	.0	2.667	.6	4.667	.1	6.667	.0		
1.333	7.8	3.333	.2	5.333	.1				

RUNOFF VOLUME = 1.76509 INCHES = 1.1076 ACRE-FEET
PEAK DISCHARGE RATE = 31.28 CFS AT 1.500 HOURS BASIN AREA = .0118 SQ. MI.

* THIS IS THE TOTAL FLOW ENTERING THE POND
ROUTE RESERVOIR ID=5 HYD NO=200.3 INFLOW ID=4 CODE=5

OUTFLOW(CFS)	STORAGE(AC FT)	ELEV(FT)
0	0	1.5
0.05	0.00271	2.0
0.10	0.03345	3.0
0.15	0.09809	4.0
0.20	0.20468	5.0
1.26	0.46795	6.0
18.47	0.69630	6.5

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	1.50	.000	.00
.17	.00	1.50	.000	.00
.33	.00	1.50	.000	.00
.50	.00	1.50	.000	.00
.67	.00	1.50	.000	.00
.83	.00	1.50	.000	.00
1.00	.00	1.50	.000	.00
1.17	.07	1.52	.000	.00
1.33	7.79	3.04	.036	.10
1.50	31.28	5.39	.308	.62
1.67	16.08	6.25	.582	9.89

1.83	9.92	6.29	.600	11.23
2.00	6.90	6.23	.573	9.19
2.17	3.12	6.15	.536	6.39
2.33	1.49	6.07	.498	3.54
2.50	.91	6.02	.477	1.97
2.67	.58	5.99	.466	1.25
2.83	.40	5.95	.456	1.21
3.00	.29	5.91	.444	1.17
3.17	.22	5.86	.432	1.12
3.33	.18	5.82	.420	1.07
3.50	.16	5.77	.408	1.02
3.67	.15	5.73	.396	.97
3.83	.14	5.69	.385	.93
4.00	.14	5.65	.375	.88
4.17	.13	5.61	.365	.84
4.33	.13	5.57	.355	.81
4.50	.13	5.54	.346	.77
4.67	.13	5.50	.337	.73
4.83	.13	5.47	.329	.70
5.00	.13	5.44	.322	.67
5.17	.14	5.42	.314	.64
5.33	.14	5.39	.308	.61
5.50	.14	5.37	.301	.59
5.67	.15	5.34	.295	.57
5.83	.15	5.32	.290	.54
6.00	.16	5.30	.285	.52
6.17	.06	5.28	.279	.50
6.33	.02	5.26	.273	.48
6.50	.01	5.24	.267	.45
6.67	.00	5.21	.261	.43
6.83	.00	5.19	.255	.40
7.00	.00	5.17	.250	.38
7.17	.00	5.15	.245	.36
7.33	.00	5.13	.240	.34
7.50	.00	5.12	.235	.32
7.67	.00	5.10	.231	.31
7.83	.00	5.08	.227	.29
8.00	.00	5.07	.223	.27
8.17	.00	5.06	.219	.26
8.33	.00	5.04	.216	.25
8.50	.00	5.03	.213	.23
8.67	.00	5.02	.209	.22
8.83	.00	5.01	.207	.21
9.00	.00	4.99	.204	.20
9.17	.00	4.97	.201	.20
9.33	.00	4.94	.198	.20
9.50	.00	4.91	.196	.20
9.67	.00	4.89	.193	.19
9.83	.00	4.86	.190	.19
10.00	.00	4.84	.188	.19
10.17	.00	4.81	.185	.19
10.33	.00	4.79	.182	.19
10.50	.00	4.77	.180	.19
10.67	.00	4.74	.177	.19
10.83	.00	4.72	.175	.19
11.00	.00	4.69	.172	.18
11.17	.00	4.67	.169	.18
11.33	.00	4.65	.167	.18
11.50	.00	4.62	.164	.18
11.67	.00	4.60	.162	.18

11.83	.00	4.58	.159	.18
12.00	.00	4.55	.157	.18
12.17	.00	4.53	.155	.18
12.33	.00	4.51	.152	.18
12.50	.00	4.48	.150	.17
12.67	.00	4.46	.147	.17
12.83	.00	4.44	.145	.17
13.00	.00	4.42	.143	.17
13.17	.00	4.40	.140	.17
13.33	.00	4.37	.138	.17
13.50	.00	4.35	.136	.17
13.67	.00	4.33	.133	.17
13.83	.00	4.31	.131	.17
14.00	.00	4.29	.129	.16
14.17	.00	4.27	.127	.16
14.33	.00	4.25	.124	.16
14.50	.00	4.22	.122	.16
14.67	.00	4.20	.120	.16
14.83	.00	4.18	.118	.16
15.00	.00	4.16	.115	.16
15.17	.00	4.14	.113	.16
15.33	.00	4.12	.111	.16
15.50	.00	4.10	.109	.16
15.67	.00	4.08	.107	.15
15.83	.00	4.06	.105	.15
16.00	.00	4.04	.103	.15
16.17	.00	4.02	.101	.15
16.33	.00	4.00	.098	.15
16.50	.00	3.97	.096	.15
16.67	.00	3.94	.094	.15
16.83	.00	3.91	.092	.15
17.00	.00	3.88	.090	.14
17.17	.00	3.85	.088	.14
17.33	.00	3.82	.086	.14
17.50	.00	3.79	.085	.14
17.67	.00	3.76	.083	.14
17.83	.00	3.73	.081	.14
18.00	.00	3.70	.079	.14
18.17	.00	3.67	.077	.13
18.33	.00	3.65	.075	.13
18.50	.00	3.62	.073	.13
18.67	.00	3.59	.072	.13
18.83	.00	3.56	.070	.13
19.00	.00	3.53	.068	.13
19.17	.00	3.51	.066	.13
19.33	.00	3.48	.065	.12
19.50	.00	3.46	.063	.12
19.67	.00	3.43	.061	.12
19.83	.00	3.40	.060	.12

PEAK DISCHARGE = 11.510 CFS - PEAK OCCURS AT HOUR 1.77
MAXIMUM WATER SURFACE ELEVATION = 6.298
MAXIMUM STORAGE = .6040 AC-FT INCREMENTAL TIME= .033333HRS

PRINT HYD ID=5 CODE=20

PARTIAL HYDROGRAPH 200.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.9	8.000	.3	12.000	.2	16.000	.2

.667	.0	4.667	.7	8.667	.2	12.667	.2	16.667	.1
1.333	.1	5.333	.6	9.333	.2	13.333	.2	17.333	.1
2.000	9.2	6.000	.5	10.000	.2	14.000	.2	18.000	.1
2.667	1.3	6.667	.4	10.667	.2	14.667	.2	18.666	.1
3.333	1.1	7.333	.3	11.333	.2	15.333	.2	19.333	.1

RUNOFF VOLUME = 1.67261 INCHES = 1.0496 ACRE-FEET
PEAK DISCHARGE RATE = 11.51 CFS AT 1.767 HOURS BASIN AREA = .0118 SQ. MI.

* THIS IS THE FLOW LEAVING THE POND
* OS-3
COMPUTE NM HYD ID=6 HYD NO=103.0
DA=0.018656
PER A=0 PER B=23 PER C=5 PER D=72
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 53.018 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 2.0100
AREA = .013432 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .127719HR TP = .133333HR K/TP RATIO = .957894 SHAPE CONSTANT, N = 3.688882
UNIT PEAK = 13.080 CFS UNIT VOLUME = .9992 B = 333.86 P60 = 2.0100
AREA = .005224 SQ MI IA = .47321 INCHES INF = 1.17500 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=20

PARTIAL HYDROGRAPH 103.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	10.9	4.000	.2	6.000	.3		
.667	.0	2.667	1.0	4.667	.2	6.667	.0		
1.333	12.8	3.333	.3	5.333	.2				

RUNOFF VOLUME = 1.75607 INCHES = 1.7473 ACRE-FEET
PEAK DISCHARGE RATE = 48.52 CFS AT 1.500 HOURS BASIN AREA = .0187 SQ. MI.

* OS-4
COMPUTE NM HYD ID=7 HYD NO=104.0
DA=0.001125
PER A=0 PER B=0 PER C=11 PER D=89
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.9520 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 2.0100
AREA = .001001 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107473HR TP = .133333HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = .35598 CFS UNIT VOLUME = .9651 B = 383.55 P60 = 2.0100
AREA = .000124 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=7 CODE=20

PARTIAL HYDROGRAPH 104.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.0	2.667	.1	4.000	.0	5.333	.0
.667	.0	2.000	.8	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = 2.00673 INCHES = .1204 ACRE-FEET
PEAK DISCHARGE RATE = 3.28 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

ADD HYD ID=8 HYD NO=200.4 ID=6 ID=7
ADD HYD ID=9 HYD NO=300.1 ID=8 ID=5
PRINT HYD ID=9 CODE=5

HYDROGRAPH FROM AREA 300.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	1.1	8.000	.3	12.000	.2	16.000	.2
.167	.0	4.167	1.1	8.167	.3	12.167	.2	16.167	.2
.333	.0	4.333	1.1	8.333	.2	12.333	.2	16.333	.2
.500	.0	4.500	1.0	8.500	.2	12.500	.2	16.500	.1
.667	.0	4.667	1.0	8.667	.2	12.667	.2	16.667	.1
.833	.0	4.833	.9	8.833	.2	12.833	.2	16.833	.1
1.000	.0	5.000	.9	9.000	.2	13.000	.2	17.000	.1
1.167	.1	5.167	.9	9.167	.2	13.167	.2	17.166	.1
1.333	13.8	5.333	.9	9.333	.2	13.333	.2	17.333	.1
1.500	52.4	5.500	.9	9.500	.2	13.500	.2	17.500	.1
1.667	36.6	5.667	.8	9.667	.2	13.667	.2	17.666	.1
1.833	27.7	5.833	.8	9.833	.2	13.833	.2	17.833	.1
2.000	20.8	6.000	.8	10.000	.2	14.000	.2	18.000	.1
2.167	11.8	6.167	.6	10.167	.2	14.167	.2	18.166	.1
2.333	6.1	6.333	.5	10.333	.2	14.333	.2	18.333	.1
2.500	3.6	6.500	.5	10.500	.2	14.500	.2	18.500	.1
2.667	2.3	6.667	.4	10.667	.2	14.667	.2	18.666	.1
2.833	2.0	6.833	.4	10.833	.2	14.833	.2	18.833	.1
3.000	1.7	7.000	.4	11.000	.2	15.000	.2	19.000	.1
3.167	1.6	7.167	.4	11.167	.2	15.167	.2	19.166	.1
3.333	1.4	7.333	.3	11.333	.2	15.333	.2	19.333	.1
3.500	1.3	7.500	.3	11.500	.2	15.500	.2	19.500	.1
3.667	1.3	7.667	.3	11.667	.2	15.667	.2	19.666	.1
3.833	1.2	7.833	.3	11.833	.2	15.833	.2	19.833	.1

RUNOFF VOLUME = 1.73386 INCHES = 2.9172 ACRE-FEET
PEAK DISCHARGE RATE = 52.42 CFS AT 1.500 HOURS BASIN AREA = .0315 SQ. MI.

* THIS IS THE FLOW AT AP-1 ON LOMAS BOULEVARD
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 07:36:23

```
    AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
         RUN DATE (MON/DAY/YR) = 04/20/1993
         START TIME (HR:MIN:SEC) = 07:36:53     USER NO.= BPLW__NM.101
         INPUT FILE = EX10YR.HYM

START                TIME=0 PUNCH CODE=0 PRINT LINES=-1
*  10 YEAR RETURN PERIOD STORM
RAINFALL             TYPE=1 QUARTER=0
                     ONE=1.34 SIX=1.57 DT=0.033333

                  COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                  DT =    .033333 HOURS       END TIME =     5.999940 HOURS
                     .0000   .0011   .0022   .0034   .0046   .0058   .0070
                     .0083   .0095   .0109   .0122   .0136   .0150   .0165
                     .0180   .0196   .0212   .0229   .0246   .0263   .0282
                     .0301   .0321   .0341   .0363   .0385   .0408   .0433
                     .0459   .0486   .0515   .0552   .0592   .0634   .0725
                     .0929   .1242   .1692   .2306   .3113   .4142   .5423
                     .6987   .8433   .9038   .9549  1.0004  1.0417  1.0798
                    1.1152  1.1482  1.1792  1.2083  1.2358  1.2618  1.2864
                    1.3097  1.3318  1.3527  1.3726  1.3915  1.3958  1.3999
                    1.4037  1.4074  1.4109  1.4143  1.4175  1.4206  1.4236
                    1.4265  1.4293  1.4320  1.4347  1.4372  1.4397  1.4421
                    1.4445  1.4467  1.4490  1.4512  1.4533  1.4554  1.4574
                    1.4594  1.4614  1.4633  1.4652  1.4670  1.4689  1.4706
                    1.4724  1.4741  1.4758  1.4775  1.4791  1.4807  1.4823
                    1.4839  1.4854  1.4870  1.4885  1.4899  1.4914  1.4928
                    1.4943  1.4957  1.4971  1.4984  1.4998  1.5011  1.5024
                    1.5037  1.5050  1.5063  1.5076  1.5088  1.5100  1.5113
                    1.5125  1.5137  1.5149  1.5160  1.5172  1.5183  1.5195
                    1.5206  1.5217  1.5228  1.5239  1.5250  1.5261  1.5271
                    1.5282  1.5293  1.5303  1.5313  1.5323  1.5334  1.5344
                    1.5354  1.5364  1.5373  1.5383  1.5393  1.5402  1.5412
                    1.5421  1.5431  1.5440  1.5449  1.5458  1.5468  1.5477
                    1.5486  1.5495  1.5503  1.5512  1.5521  1.5530  1.5538
                    1.5547  1.5555  1.5564  1.5572  1.5581  1.5589  1.5597
                    1.5605  1.5613  1.5622  1.5630  1.5638  1.5646  1.5653
                    1.5661  1.5669  1.5677  1.5685  1.5692  1.5700

*  OS-1A & OS-1B
COMPUTE NM HYD       ID=1 HYD NO=101.0
                     DA=0.004875
                     PER A=0. PER B=0. PER C=54. PER D=46.
                     TP=0.133333 MASSRAIN=-1

     K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   8.8513    CFS   UNIT VOLUME =    .9980       B =   526.28      P60 = 1.3400
     AREA =      .002243 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .107144HR    TP =   .133333HR    K/TP RATIO =   .803581     SHAPE CONSTANT, N =  4.455904
     UNIT PEAK =   7.5913    CFS   UNIT VOLUME =    .9987       B =   384.49      P60 = 1.3400
     AREA =      .002633 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD            ID=1 CODE=20
```

PARTIAL HYDROGRAPH 101.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.3	2.667	.1	4.000	.0	5.333	.0
.667	.0	2.000	1.3	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = .89020 INCHES = .2314 ACRE-FEET
PEAK DISCHARGE RATE = 7.32 CFS AT 1.500 HOURS BASIN AREA = .0049 SQ. MI.

* OS-2A & OS-2B
COMPUTE NM HYD ID=2 HYD NO=102.0
DA=0.004547
PER A=0. PER B=0. PER C=5. PER D=95.
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.050 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.3400
AREA = .004320 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107144HR TP = .133333HR K/TP RATIO = .803581 SHAPE CONSTANT, N = 4.455904
UNIT PEAK = .65561 CFS UNIT VOLUME = .9816 B = 384.49 P60 = 1.3400
AREA = .000227 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=20

PARTIAL HYDROGRAPH 102.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	2.1	4.000	.0	6.000	.1		
.667	.0	2.667	.2	4.667	.0	6.667	.0		
1.333	2.4	3.333	.0	5.333	.0				

RUNOFF VOLUME = 1.29621 INCHES = .3143 ACRE-FEET
PEAK DISCHARGE RATE = 8.84 CFS AT 1.500 HOURS BASIN AREA = .0045 SQ. MI.

* ONSITE
COMPUTE NM HYD ID=3 HYD NO=100.0
DA=0.002344
PER A=0. PER B=0. PER C=56. PER D=44.
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.0709 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 1.3400
AREA = .001031 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107144HR TP = .133333HR K/TP RATIO = .803581 SHAPE CONSTANT, N = 4.455904
UNIT PEAK = 3.7853 CFS UNIT VOLUME = .9969 B = 384.49 P60 = 1.3400
AREA = .001313 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```
PRINT HYD          ID=3 CODE=20
```

PARTIAL HYDROGRAPH 100.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.6	2.667	.0	4.000	.0	5.333	.0
.667	.0	2.000	.6	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = .87362 INCHES = .1092 ACRE-FEET
PEAK DISCHARGE RATE = 3.48 CFS AT 1.500 HOURS BASIN AREA = .0023 SQ. MI.

```
ADD HYD            ID=4 HYD NO=200.1 ID=1 ID=2
ADD HYD            ID=4 HYD NO=200.2 ID=4 ID=3
PRINT HYD          ID=4 CODE=20
```

PARTIAL HYDROGRAPH 200.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	4.1	4.000	.0	6.000	.1		
.667	.0	2.667	.3	4.667	.1	6.667	.0		
1.333	4.2	3.333	.1	5.333	.1				

RUNOFF VOLUME = 1.04372 INCHES = .6550 ACRE-FEET
PEAK DISCHARGE RATE = 19.65 CFS AT 1.500 HOURS BASIN AREA = .0118 SQ. MI.

```
* THIS IS THE TOTAL FLOW ENTERING THE POND
ROUTE RESERVOIR    ID=5 HYD NO=200.3 INFLOW ID=4 CODE=5
                   OUTFLOW(CFS)   STORAGE(AC FT)   ELEV(FT)
                   0              0                1.5
                   0.05           0.00271          2.0
                   0.10           0.03345          3.0
                   0.15           0.09809          4.0
                   0.20           0.20468          5.0
                   1.26           0.46795          6.0
                   18.47          0.69630          6.5
```

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	1.50	.000	.00
.17	.00	1.50	.000	.00
.33	.00	1.50	.000	.00
.50	.00	1.50	.000	.00
.67	.00	1.50	.000	.00
.83	.00	1.50	.000	.00
1.00	.00	1.50	.000	.00
1.17	.00	1.50	.000	.00
1.33	4.19	2.41	.015	.07
1.50	19.65	4.76	.179	.19
1.67	9.86	5.66	.379	.90
1.83	5.80	5.99	.466	1.25

2.00	4.06	6.06	.497	3.44
2.17	1.84	6.05	.492	3.09
2.33	.84	6.02	.476	1.83
2.50	.49	5.99	.465	1.25
2.67	.30	5.94	.453	1.20
2.83	.19	5.89	.440	1.15
3.00	.12	5.84	.427	1.09
3.17	.08	5.79	.414	1.04
3.33	.06	5.74	.400	.99
3.50	.05	5.70	.388	.94
3.67	.05	5.65	.376	.89
3.83	.04	5.61	.365	.84
4.00	.05	5.57	.354	.80
4.17	.04	5.53	.344	.76
4.33	.05	5.49	.334	.72
4.50	.05	5.46	.325	.69
4.67	.06	5.43	.317	.65
4.83	.06	5.40	.309	.62
5.00	.07	5.37	.301	.59
5.17	.07	5.34	.294	.56
5.33	.08	5.32	.288	.54
5.50	.08	5.29	.282	.51
5.67	.09	5.27	.276	.49
5.83	.10	5.25	.271	.47
6.00	.11	5.23	.266	.45
6.17	.04	5.21	.261	.43
6.33	.01	5.19	.256	.41
6.50	.00	5.17	.250	.38
6.67	.00	5.15	.245	.36
6.83	.00	5.14	.240	.34
7.00	.00	5.12	.236	.33
7.17	.00	5.10	.231	.31
7.33	.00	5.09	.227	.29
7.50	.00	5.07	.223	.28
7.67	.00	5.06	.220	.26
7.83	.00	5.04	.216	.25
8.00	.00	5.03	.213	.23
8.17	.00	5.02	.210	.22
8.33	.00	5.01	.207	.21
8.50	.00	4.99	.204	.20
8.67	.00	4.97	.201	.20
8.83	.00	4.94	.199	.20
9.00	.00	4.92	.196	.20
9.17	.00	4.89	.193	.19
9.33	.00	4.87	.190	.19
9.50	.00	4.84	.188	.19
9.67	.00	4.82	.185	.19
9.83	.00	4.79	.183	.19
10.00	.00	4.77	.180	.19
10.17	.00	4.74	.177	.19
10.33	.00	4.72	.175	.19
10.50	.00	4.70	.172	.18
10.67	.00	4.67	.170	.18
10.83	.00	4.65	.167	.18
11.00	.00	4.62	.165	.18
11.17	.00	4.60	.162	.18
11.33	.00	4.58	.160	.18
11.50	.00	4.56	.157	.18
11.67	.00	4.53	.155	.18
11.83	.00	4.51	.152	.18

12.00	.00	4.49	.150	.17
12.17	.00	4.46	.148	.17
12.33	.00	4.44	.145	.17
12.50	.00	4.42	.143	.17
12.67	.00	4.40	.141	.17
12.83	.00	4.38	.138	.17
13.00	.00	4.35	.136	.17
13.17	.00	4.33	.134	.17
13.33	.00	4.31	.131	.17
13.50	.00	4.29	.129	.16
13.67	.00	4.27	.127	.16
13.83	.00	4.25	.125	.16
14.00	.00	4.23	.122	.16
14.17	.00	4.21	.120	.16
14.33	.00	4.19	.118	.16
14.50	.00	4.16	.116	.16
14.67	.00	4.14	.114	.16
14.83	.00	4.12	.111	.16
15.00	.00	4.10	.109	.16
15.17	.00	4.08	.107	.15
15.33	.00	4.06	.105	.15
15.50	.00	4.04	.103	.15
15.67	.00	4.03	.101	.15
15.83	.00	4.01	.099	.15
16.00	.00	3.98	.097	.15
16.17	.00	3.95	.095	.15
16.33	.00	3.91	.093	.15
16.50	.00	3.88	.091	.14
16.67	.00	3.85	.089	.14
16.83	.00	3.82	.087	.14
17.00	.00	3.79	.085	.14
17.17	.00	3.76	.083	.14
17.33	.00	3.73	.081	.14
17.50	.00	3.71	.079	.14
17.67	.00	3.68	.077	.13
17.83	.00	3.65	.075	.13
18.00	.00	3.62	.074	.13
18.17	.00	3.59	.072	.13
18.33	.00	3.56	.070	.13
18.50	.00	3.54	.068	.13
18.67	.00	3.51	.066	.13
18.83	.00	3.48	.065	.12
19.00	.00	3.46	.063	.12
19.17	.00	3.43	.061	.12
19.33	.00	3.41	.060	.12
19.50	.00	3.38	.058	.12
19.67	.00	3.36	.056	.12
19.83	.00	3.33	.055	.12

PEAK DISCHARGE = 3.553 CFS - PEAK OCCURS AT HOUR 2.07

MAXIMUM WATER SURFACE ELEVATION = 6.067

MAXIMUM STORAGE = .4984 AC-FT INCREMENTAL TIME= .033333HRS

PRINT HYD ID=5 CODE=20

PARTIAL HYDROGRAPH 200.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.8	8.000	.2	12.000	.2	16.000	.1
.667	.0	4.667	.7	8.667	.2	12.667	.2	16.667	.1

1.333	.1	5.333	.5	9.333	.2	13.333	.2	17.333	.1
2.000	3.4	6.000	.4	10.000	.2	14.000	.2	18.000	.1
2.667	1.2	6.667	.4	10.667	.2	14.667	.2	18.666	.1
3.333	1.0	7.333	.3	11.333	.2	15.333	.2	19.333	.1

RUNOFF VOLUME = .95869 INCHES = .6016 ACRE-FEET
PEAK DISCHARGE RATE = 3.55 CFS AT 2.067 HOURS BASIN AREA = .0118 SQ. MI.

* THIS IS THE FLOW LEAVING THE POND
* OS-3
COMPUTE NM HYD ID=6 HYD NO=103.0
DA=0.018656
PER A=0 PER B=23 PER C=5 PER D=72
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 53.018 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.3400
AREA = .013432 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .134422HR TP = .133333HR K/TP RATIO = 1.008169 SHAPE CONSTANT, N = 3.501453
UNIT PEAK = 12.554 CFS UNIT VOLUME = .9992 B = 320.44 P60 = 1.3400
AREA = .005224 SQ MI IA = .47321 INCHES INF = 1.17500 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=20

PARTIAL HYDROGRAPH 103.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	6.9	4.000	.1	6.000	.2		
.667	.0	2.667	.5	4.667	.1	6.667	.0		
1.333	7.3	3.333	.1	5.333	.1				

RUNOFF VOLUME = 1.05056 INCHES = 1.0453 ACRE-FEET
PEAK DISCHARGE RATE = 30.14 CFS AT 1.500 HOURS BASIN AREA = .0187 SQ. MI.

* OS-4
COMPUTE NM HYD ID=7 HYD NO=104.0
DA=0.001125
PER A=0 PER B=0 PER C=11 PER D=89
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.9520 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 1.3400
AREA = .001001 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107144HR TP = .133333HR K/TP RATIO = .803581 SHAPE CONSTANT, N = 4.455904
UNIT PEAK = .35686 CFS UNIT VOLUME = .9653 B = 384.49 P60 = 1.3400
AREA = .000124 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```
PRINT HYD          ID=7 CODE=20
```

PARTIAL HYDROGRAPH 104.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.5	2.667	.0	4.000	.0	5.333	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = 1.24649 INCHES = .0748 ACRE-FEET
PEAK DISCHARGE RATE = 2.14 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

```
ADD HYD            ID=8 HYD NO=200.4 ID=6 ID=7
ADD HYD            ID=9 HYD NO=300.1 ID=8 ID=5
PRINT HYD          ID=9 CODE=5
```

HYDROGRAPH FROM AREA 300.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.9	8.000	.2	12.000	.2	16.000	.1
.167	.0	4.167	.8	8.167	.2	12.167	.2	16.167	.1
.333	.0	4.333	.8	8.333	.2	12.333	.2	16.333	.1
.500	.0	4.500	.8	8.500	.2	12.500	.2	16.500	.1
.667	.0	4.667	.8	8.667	.2	12.667	.2	16.667	.1
.833	.0	4.833	.7	8.833	.2	12.833	.2	16.833	.1
1.000	.0	5.000	.7	9.000	.2	13.000	.2	17.000	.1
1.167	.0	5.167	.7	9.167	.2	13.167	.2	17.166	.1
1.333	7.9	5.333	.7	9.333	.2	13.333	.2	17.333	.1
1.500	32.5	5.500	.7	9.500	.2	13.500	.2	17.500	.1
1.667	17.2	5.667	.7	9.667	.2	13.667	.2	17.666	.1
1.833	11.4	5.833	.7	9.833	.2	13.833	.2	17.833	.1
2.000	10.8	6.000	.6	10.000	.2	14.000	.2	18.000	.1
2.167	6.4	6.167	.5	10.167	.2	14.167	.2	18.166	.1
2.333	3.3	6.333	.4	10.333	.2	14.333	.2	18.333	.1
2.500	2.1	6.500	.4	10.500	.2	14.500	.2	18.500	.1
2.667	1.8	6.667	.4	10.667	.2	14.667	.2	18.666	.1
2.833	1.5	6.833	.3	10.833	.2	14.833	.2	18.833	.1
3.000	1.3	7.000	.3	11.000	.2	15.000	.2	19.000	.1
3.167	1.2	7.167	.3	11.167	.2	15.167	.2	19.166	.1
3.333	1.1	7.333	.3	11.333	.2	15.333	.2	19.333	.1
3.500	1.0	7.500	.3	11.500	.2	15.500	.2	19.500	.1
3.667	1.0	7.667	.3	11.667	.2	15.667	.2	19.666	.1
3.833	.9	7.833	.2	11.833	.2	15.833	.2	19.833	.1

RUNOFF VOLUME = 1.02327 INCHES = 1.7216 ACRE-FEET
PEAK DISCHARGE RATE = 32.47 CFS AT 1.500 HOURS BASIN AREA = .0315 SQ. MI.

```
* THIS IS THE FLOW AT AP-1 ON LOMAS BOULEVARD
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 07:36:54
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    AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
         RUN DATE (MON/DAY/YR) = 04/20/1993
         START TIME (HR:MIN:SEC) = 07:37:09     USER NO.= BPLW__NM.I01
         INPUT FILE = DEV100YR.HYM

START                TIME=0 PUNCH CODE=0 PRINT LINES=-1
*  100 YEAR RETURN PERIOD STORM
RAINFALL             TYPE=1 QUARTER=0
                     ONE=2.01 SIX=2.35 DT=0.033333

                  COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                  DT =    .033333 HOURS       END TIME =     5.999940 HOURS
                     .0000   .0016   .0033   .0049   .0066   .0084   .0102
                     .0120   .0139   .0158   .0178   .0199   .0219   .0241
                     .0263   .0286   .0309   .0333   .0358   .0384   .0411
                     .0439   .0467   .0497   .0529   .0561   .0596   .0631
                     .0669   .0709   .0751   .0807   .0866   .0930   .1066
                     .1372   .1842   .2517   .3438   .4648   .6192   .8114
                    1.0459  1.2628  1.3536  1.4303  1.4985  1.5605  1.6176
                    1.6706  1.7202  1.7667  1.8104  1.8516  1.8906  1.9274
                    1.9624  1.9955  2.0269  2.0568  2.0851  2.0915  2.0976
                    2.1034  2.1088  2.1141  2.1191  2.1239  2.1285  2.1330
                    2.1373  2.1414  2.1455  2.1494  2.1532  2.1569  2.1604
                    2.1639  2.1673  2.1707  2.1739  2.1771  2.1802  2.1832
                    2.1862  2.1891  2.1920  2.1948  2.1975  2.2002  2.2028
                    2.2054  2.2080  2.2105  2.2130  2.2154  2.2178  2.2202
                    2.2225  2.2248  2.2271  2.2293  2.2315  2.2336  2.2358
                    2.2379  2.2400  2.2420  2.2440  2.2460  2.2480  2.2500
                    2.2519  2.2538  2.2557  2.2576  2.2594  2.2613  2.2631
                    2.2649  2.2666  2.2684  2.2701  2.2718  2.2736  2.2752
                    2.2769  2.2786  2.2802  2.2818  2.2834  2.2850  2.2866
                    2.2882  2.2897  2.2913  2.2928  2.2943  2.2958  2.2973
                    2.2988  2.3002  2.3017  2.3031  2.3046  2.3060  2.3074
                    2.3088  2.3102  2.3116  2.3129  2.3143  2.3156  2.3170
                    2.3183  2.3196  2.3209  2.3222  2.3235  2.3248  2.3261
                    2.3273  2.3286  2.3299  2.3311  2.3323  2.3336  2.3348
                    2.3360  2.3372  2.3384  2.3396  2.3408  2.3420  2.3431
                    2.3443  2.3454  2.3466  2.3477  2.3489  2.3500

*  OS-1B
COMPUTE NM HYD       ID=1 HYD NO=101.2
                     DA=0.003203
                     PER A=0. PER B=0. PER C=32. PER D=68.
                     TP=0.133333 MASSRAIN=-1

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   8.5969    CFS   UNIT VOLUME =    .9980       B =   526.28      P60 = 2.0100
    AREA =      .002178 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .107473HR    TP =   .133333HR    K/TP RATIO =   .806046     SHAPE CONSTANT, N =  4.440701
    UNIT PEAK =   2.9484    CFS   UNIT VOLUME =    .9960       B =   383.55      P60 = 2.0100
    AREA =      .001025 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD            ID=1 CODE=20
```

PARTIAL HYDROGRAPH 101.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	1.9	4.000	.0	6.000	.0		
.667	.0	2.667	.2	4.667	.0	6.667	.0		
1.333	2.2	3.333	.1	5.333	.0				

RUNOFF VOLUME = 1.79935 INCHES = .3074 ACRE-FEET
PEAK DISCHARGE RATE = 8.63 CFS AT 1.500 HOURS BASIN AREA = .0032 SQ. MI.

* OS-2A & OS-2B
COMPUTE NM HYD ID=2 HYD NO=102.0
DA=0.004547
PER A=0. PER B=0. PER C=5. PER D=95.
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.050 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 2.0100
AREA = .004320 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107473HR TP = .133333HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = .65400 CFS UNIT VOLUME = .9814 B = 383.55 P60 = 2.0100
AREA = .000227 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=20

PARTIAL HYDROGRAPH 102.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	3.3	4.000	.1	6.000	.1		
.667	.0	2.667	.3	4.667	.1	6.667	.0		
1.333	4.1	3.333	.1	5.333	.1				

RUNOFF VOLUME = 2.06598 INCHES = .5010 ACRE-FEET
PEAK DISCHARGE RATE = 13.47 CFS AT 1.500 HOURS BASIN AREA = .0045 SQ. MI.

ADD HYD ID=2 HYD NO=200.1 ID=1 ID=2
PRINT HYD ID=2 CODE=20

PARTIAL HYDROGRAPH 200.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	5.2	4.000	.1	6.000	.1		
.667	.0	2.667	.4	4.667	.1	6.667	.0		
1.333	6.3	3.333	.2	5.333	.1				

RUNOFF VOLUME = 1.95571 INCHES = .8084 ACRE-FEET
PEAK DISCHARGE RATE = 22.10 CFS AT 1.500 HOURS BASIN AREA = .0078 SQ. MI.

```
*  THIS IS THE FLOW AT AP-5 (WALL PENETRATION)
*  ONSITE
COMPUTE NM HYD       ID=3 HYD NO=100.0
                     DA=0.002344
                     PER A=0. PER B=14. PER C=0. PER D=86.
                     TP=0.133333 MASSRAIN=-1

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   7.9567    CFS   UNIT VOLUME =    .9978       B =   526.28      P60 = 2.0100
    AREA =      .002016 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .132120HR    TP =   .133333HR    K/TP RATIO =   .990905     SHAPE CONSTANT, N =  3.563129
    UNIT PEAK =   .79967    CFS   UNIT VOLUME =    .9831       B =   324.91      P60 = 2.0100
    AREA =      .000328 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=20

                              PARTIAL HYDROGRAPH   100.00

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000       .0          1.333       1.9         2.667       .1         4.000       .0         5.333       .0
     .667       .0          2.000       1.6         3.333       .0         4.667       .0         6.000       .0

    RUNOFF VOLUME =     1.92815 INCHES     =        .2410 ACRE-FEET
    PEAK DISCHARGE RATE =       6.56 CFS  AT   1.500 HOURS   BASIN AREA =   .0023 SQ. MI.


ADD HYD              ID=4 HYD NO=200.2 ID=2 ID=3
PRINT HYD            ID=4 CODE=20

                              PARTIAL HYDROGRAPH   200.20

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000       .0          2.000       6.8         4.000       .2         6.000       .2
     .667       .0          2.667        .6         4.667       .1         6.667       .0
    1.333       8.2         3.333        .2         5.333       .2

    RUNOFF VOLUME =     1.94928 INCHES     =       1.0494 ACRE-FEET
    PEAK DISCHARGE RATE =      28.65 CFS  AT   1.500 HOURS   BASIN AREA =   .0101 SQ. MI.


* THIS IS THE TOTAL FLOW LEAVING THE WEST DRIVEWAY AT AP-6
*  OS-1A
COMPUTE NM HYD       ID=5 HYD NO=101.1
                     DA=0.001672
                     PER A=0. PER B=0. PER C=95. PER D=5.
                     TP=0.133333 MASSRAIN=-1

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .32998    CFS   UNIT VOLUME =    .9664       B =   526.28      P60 = 2.0100
    AREA =      .000084 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333
```

K = .107473HR TP = .133333HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = 4.5692 CFS UNIT VOLUME = .9975 B = 383.55 P60 = 2.0100
AREA = .001588 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=20

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.4	2.667	.0	4.000	.0	5.333	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = 1.17723 INCHES = .1050 ACRE-FEET
PEAK DISCHARGE RATE = 3.46 CFS AT 1.500 HOURS BASIN AREA = .0017 SQ. MI.

* OS-3
COMPUTE NM HYD ID=6 HYD NO=103.0
DA=0.018656
PER A=0 PER B=23 PER C=5 PER D=72
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 53.018 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 2.0100
AREA = .013432 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .127719HR TP = .133333HR K/TP RATIO = .957894 SHAPE CONSTANT, N = 3.688882
UNIT PEAK = 13.080 CFS UNIT VOLUME = .9992 B = 333.86 P60 = 2.0100
AREA = .005224 SQ MI IA = .47321 INCHES INF = 1.17500 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=20

PARTIAL HYDROGRAPH 103.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	10.9	4.000	.2	6.000	.3		
.667	.0	2.667	1.0	4.667	.2	6.667	.0		
1.333	12.8	3.333	.3	5.333	.2				

RUNOFF VOLUME = 1.75607 INCHES = 1.7473 ACRE-FEET
PEAK DISCHARGE RATE = 48.52 CFS AT 1.500 HOURS BASIN AREA = .0187 SQ. MI.

* OS-4
COMPUTE NM HYD ID=7 HYD NO=104.0
DA=0.001125
PER A=0 PER B=0 PER C=11 PER D=89
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = 3.9520 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 2.0100
AREA = .001001 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107473HR TP = .133333HR K/TP RATIO = .806046 SHAPE CONSTANT, N = 4.440701
UNIT PEAK = .35598 CFS UNIT VOLUME = .9651 B = 383.55 P60 = 2.0100
AREA = .000124 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=7 CODE=20

PARTIAL HYDROGRAPH 104.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.0	2.667	.1	4.000	.0	5.333	.0
.667	.0	2.000	.8	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = 2.00673 INCHES = .1204 ACRE-FEET
PEAK DISCHARGE RATE = 3.28 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

ADD HYD ID=8 HYD NO=200.4 ID=6 ID=7
ADD HYD ID=9 HYD NO=200.5 ID=4 ID=5
ADD HYD ID=9 HYD NO=300.1 ID=8 ID=9
PRINT HYD ID=9 CODE=5

HYDROGRAPH FROM AREA 300.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	83.9	3.000	.9	4.500	.4	6.000	.5
.167	.0	1.667	43.1	3.167	.7	4.667	.4	6.167	.2
.333	.0	1.833	26.8	3.333	.6	4.833	.4	6.333	.1
.500	.0	2.000	19.0	3.500	.5	5.000	.4	6.500	.0
.667	.0	2.167	8.7	3.667	.5	5.167	.4	6.667	.0
.833	.0	2.333	4.1	3.833	.4	5.333	.4	6.833	.0
1.000	.0	2.500	2.6	4.000	.4	5.500	.4	7.000	.0
1.167	.2	2.667	1.7	4.167	.4	5.667	.5		
1.333	22.2	2.833	1.2	4.333	.4	5.833	.5		

RUNOFF VOLUME = 1.79613 INCHES = 3.0220 ACRE-FEET
PEAK DISCHARGE RATE = 83.92 CFS AT 1.500 HOURS BASIN AREA = .0315 SQ. MI.

* THIS IS THE FLOW AT AP-1 ON LOMAS BOULEVARD
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 07:37:10

```
    AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
         RUN DATE (MON/DAY/YR) = 04/20/1993
         START TIME (HR:MIN:SEC) = 07:37:29     USER NO.= BPLW__NM.101
         INPUT FILE = DEV10YR.HYM

START                TIME=0 PUNCH CODE=0 PRINT LINES=-1
*  10 YEAR RETURN PERIOD STORM
RAINFALL             TYPE=1 QUARTER=0
                     ONE=1.34 SIX=1.57 DT=0.033333

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =    .033333 HOURS       END TIME =     5.999940 HOURS
                   .0000   .0011   .0022   .0034   .0046   .0058   .0070
                   .0083   .0095   .0109   .0122   .0136   .0150   .0165
                   .0180   .0196   .0212   .0229   .0246   .0263   .0282
                   .0301   .0321   .0341   .0363   .0385   .0408   .0433
                   .0459   .0486   .0515   .0552   .0592   .0634   .0725
                   .0929   .1242   .1692   .2306   .3113   .4142   .5423
                   .6987   .8433   .9038   .9549  1.0004  1.0417  1.0798
                  1.1152  1.1482  1.1792  1.2083  1.2358  1.2618  1.2864
                  1.3097  1.3318  1.3527  1.3726  1.3915  1.3958  1.3999
                  1.4037  1.4074  1.4109  1.4143  1.4175  1.4206  1.4236
                  1.4265  1.4293  1.4320  1.4347  1.4372  1.4397  1.4421
                  1.4445  1.4467  1.4490  1.4512  1.4533  1.4554  1.4574
                  1.4594  1.4614  1.4633  1.4652  1.4670  1.4689  1.4706
                  1.4724  1.4741  1.4758  1.4775  1.4791  1.4807  1.4823
                  1.4839  1.4854  1.4870  1.4885  1.4899  1.4914  1.4928
                  1.4943  1.4957  1.4971  1.4984  1.4998  1.5011  1.5024
                  1.5037  1.5050  1.5063  1.5076  1.5088  1.5100  1.5113
                  1.5125  1.5137  1.5149  1.5160  1.5172  1.5183  1.5195
                  1.5206  1.5217  1.5228  1.5239  1.5250  1.5261  1.5271
                  1.5282  1.5293  1.5303  1.5313  1.5323  1.5334  1.5344
                  1.5354  1.5364  1.5373  1.5383  1.5393  1.5402  1.5412
                  1.5421  1.5431  1.5440  1.5449  1.5458  1.5468  1.5477
                  1.5486  1.5495  1.5503  1.5512  1.5521  1.5530  1.5538
                  1.5547  1.5555  1.5564  1.5572  1.5581  1.5589  1.5597
                  1.5605  1.5613  1.5622  1.5630  1.5638  1.5646  1.5653
                  1.5661  1.5669  1.5677  1.5685  1.5692  1.5700

*  OS-1B
COMPUTE NM HYD       ID=1 HYD NO=101.2
                     DA=0.003203
                     PER A=0. PER B=0. PER C=32. PER D=68.
                     TP=0.133333 MASSRAIN=-1

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   8.5969    CFS   UNIT VOLUME =    .9980       B =   526.28      P60 = 1.3400
    AREA =      .002178 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .107144HR    TP =   .133333HR    K/TP RATIO =   .803581     SHAPE CONSTANT, N =  4.455904
    UNIT PEAK =   2.9557    CFS   UNIT VOLUME =    .9960       B =   384.49      P60 = 1.3400
    AREA =      .001025 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD            ID=1 CODE=20
```

PARTIAL HYDROGRAPH 101.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.2	2.667	.1	4.000	.0	5.333	.0
.667	.0	2.000	1.2	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = 1.07249 INCHES = .1832 ACRE-FEET
PEAK DISCHARGE RATE = 5.45 CFS AT 1.500 HOURS BASIN AREA = .0032 SQ. MI.

* OS-2A & OS-2B
COMPUTE NM HYD ID=2 HYD NO=102.0
DA=0.004547
PER A=0. PER B=0. PER C=5. PER D=95.
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.050 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.3400
AREA = .004320 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .107144HR TP = .133333HR K/TP RATIO = .803581 SHAPE CONSTANT, N = 4.455904
UNIT PEAK = .65561 CFS UNIT VOLUME = .9816 B = 384.49 P60 = 1.3400
AREA = .000227 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=20

PARTIAL HYDROGRAPH 102.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	2.1	4.000	.0	6.000	.1		
.667	.0	2.667	.2	4.667	.0	6.667	.0		
1.333	2.4	3.333	.0	5.333	.0				

RUNOFF VOLUME = 1.29621 INCHES = .3143 ACRE-FEET
PEAK DISCHARGE RATE = 8.84 CFS AT 1.500 HOURS BASIN AREA = .0045 SQ. MI.

ADD HYD ID=2 HYD NO=200.1 ID=1 ID=2
PRINT HYD ID=2 CODE=20

PARTIAL HYDROGRAPH 200.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	3.3	4.000	.0	6.000	.1		
.667	.0	2.667	.2	4.667	.0	6.667	.0		
1.333	3.6	3.333	.1	5.333	.1				

RUNOFF VOLUME = 1.20367 INCHES = .4975 ACRE-FEET
PEAK DISCHARGE RATE = 14.30 CFS AT 1.500 HOURS BASIN AREA = .0078 SQ. MI.

```
*  THIS IS THE FLOW AT AP-5 (WALL PENETRATION)
*  ONSITE
COMPUTE NM HYD       ID=3 HYD NO=100.0
                     DA=0.002344
                     PER A=0. PER B=14. PER C=0. PER D=86.
                     TP=0.133333 MASSRAIN=-1

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   7.9567    CFS   UNIT VOLUME =    .9978       B =   526.28      P60 = 1.3400
    AREA =      .002016 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .140352HR    TP =   .133333HR    K/TP RATIO =  1.052645     SHAPE CONSTANT, N =  3.354139
    UNIT PEAK =   .76181    CFS   UNIT VOLUME =    .9823       B =   309.53      P60 = 1.3400
    AREA =      .000328 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=20
```

PARTIAL HYDROGRAPH 100.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.1	2.667	.1	4.000	.0	5.333	.0
.667	.0	2.000	1.0	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = 1.18933 INCHES = .1487 ACRE-FEET
PEAK DISCHARGE RATE = 4.21 CFS AT 1.500 HOURS BASIN AREA = .0023 SQ. MI.

```
ADD HYD              ID=4 HYD NO=200.2 ID=2 ID=3
PRINT HYD            ID=4 CODE=20
```

PARTIAL HYDROGRAPH 200.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	4.3	4.000	.1	6.000	.1		
.667	.0	2.667	.3	4.667	.1	6.667	.0		
1.333	4.6	3.333	.1	5.333	.1				

RUNOFF VOLUME = 1.20031 INCHES = .6462 ACRE-FEET
PEAK DISCHARGE RATE = 18.50 CFS AT 1.500 HOURS BASIN AREA = .0101 SQ. MI.

```
*  THIS IS THE TOTAL FLOW LEAVING THE WEST DRIVEWAY AT AP-6
*  OS-1A
COMPUTE NM HYD       ID=5 HYD NO=101.1
                     DA=0.001672
                     PER A=0. PER B=0. PER C=95. PER D=5.
                     TP=0.133333 MASSRAIN=-1

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .32998    CFS   UNIT VOLUME =    .9664       B =   526.28      P60 = 1.3400
    AREA =      .000084 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333
```

K = .107144HR TP = .133333HR K/TP RATIO = .803581 SHAPE CONSTANT, N = 4.455904
UNIT PEAK = 4.5805 CFS UNIT VOLUME = .9975 B = 384.49 P60 = 1.3400
AREA = .001588 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=20

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.1	2.667	.0	4.000	.0	5.333	.0
.667	.0	2.000	.2	3.333	.0	4.667	.0	6.000	.0

RUNOFF VOLUME = .55047 INCHES = .0491 ACRE-FEET
PEAK DISCHARGE RATE = 1.90 CFS AT 1.500 HOURS BASIN AREA = .0017 SQ. MI.

* OS-3
COMPUTE NM HYD ID=6 HYD NO=103.0
DA=0.018656
PER A=0 PER B=23 PER C=5 PER D=72
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 53.018 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.3400
AREA = .013432 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .134422HR TP = .133333HR K/TP RATIO = 1.008169 SHAPE CONSTANT, N = 3.501453
UNIT PEAK = 12.554 CFS UNIT VOLUME = .9992 B = 320.44 P60 = 1.3400
AREA = .005224 SQ MI IA = .47321 INCHES INF = 1.17500 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=20

PARTIAL HYDROGRAPH 103.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	6.9	4.000	.1	6.000	.2		
.667	.0	2.667	.5	4.667	.1	6.667	.0		
1.333	7.3	3.333	.1	5.333	.1				

RUNOFF VOLUME = 1.05056 INCHES = 1.0453 ACRE-FEET
PEAK DISCHARGE RATE = 30.14 CFS AT 1.500 HOURS BASIN AREA = .0187 SQ. MI.

* OS-4
COMPUTE NM HYD ID=7 HYD NO=104.0
DA=0.001125
PER A=0 PER B=0 PER C=11 PER D=89
TP=0.133333 MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.9520 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 1.3400

```
    AREA =      .001001 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .107144HR    TP =   .133333HR    K/TP RATIO =   .803581     SHAPE CONSTANT, N =  4.455904
    UNIT PEAK =   .35686    CFS   UNIT VOLUME =    .9653       B =   384.49      P60 = 1.3400
    AREA =      .000124 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD           ID=7 CODE=20

                                PARTIAL HYDROGRAPH   104.00

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000       .0           1.333       .5          2.667       .0          4.000       .0          5.333       .0
     .667       .0           2.000       .5          3.333       .0          4.667       .0          6.000       .0

    RUNOFF VOLUME =      1.24649 INCHES      =         .0748 ACRE-FEET
    PEAK DISCHARGE RATE =       2.14 CFS  AT   1.500 HOURS   BASIN AREA =   .0011 SQ. MI.


ADD HYD             ID=8 HYD NO=200.4 ID=6 ID=7
ADD HYD             ID=9 HYD NO=200.5 ID=4 ID=5
ADD HYD             ID=9 HYD NO=300.1 ID=8 ID=9
PRINT HYD           ID=9 CODE=5

                                HYDROGRAPH FROM AREA   300.10

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     .000       .0           1.500      52.7          3.000       .4          4.500       .2          6.000       .3
     .167       .0           1.667      26.5          3.167       .3          4.667       .2          6.167       .1
     .333       .0           1.833      16.4          3.333       .2          4.833       .2          6.333       .0
     .500       .0           2.000      11.8          3.500       .2          5.000       .2          6.500       .0
     .667       .0           2.167       5.3          3.667       .1          5.167       .2          6.667       .0
     .833       .0           2.333       2.4          3.833       .1          5.333       .2          6.833       .0
    1.000       .0           2.500       1.4          4.000       .1          5.500       .3
    1.167       .0           2.667        .9          4.167       .1          5.667       .3
    1.333      12.6          2.833        .6          4.333       .1          5.833       .3

    RUNOFF VOLUME =     1.07893 INCHES      =        1.8153 ACRE-FEET
    PEAK DISCHARGE RATE =      52.68 CFS  AT   1.500 HOURS   BASIN AREA =   .0315 SQ. MI.


* THIS IS THE FLOW AT AP-1 ON LOMAS BOULEVARD
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 07:37:30
```

APPENDIX D

BPLW

Architects & Engineers, Inc.

2400 Louisiana Blvd. NE
AFC #5 Suite 400
Albuquerque, NM 87110
(505) 881-2759

63 East Main Street
Suite 602
Mesa, AZ 85201
(602) 827-2759

Project NMEFCU

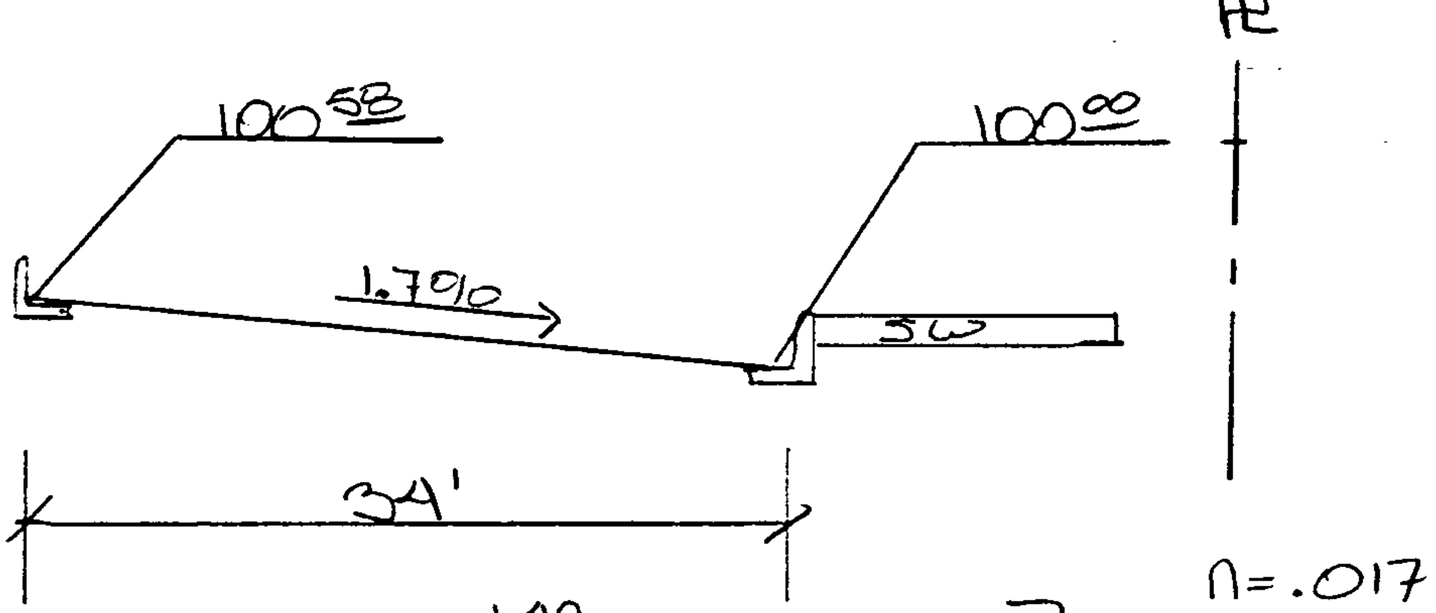
Subject EXISTING 100 YR FLOW DEPTH @ AP1

Project No. 92049 Date 7/12/93 By CAHM

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____

- At AP-1 the Longitudinal slope of Lomas is 1.6%

- The existing street section of Lomas is 34' wide Lomas with a 1.7% cross slope and 7" curbs



[TRIAL + ERROR ⇒ $Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$]

FLOW DEPTH FOR SOUTH LANES ~ 100 YR STORM
(Q = 43.1 CFS)

D	FLOW WIDTH	AREA	PERIMETER	R	Q
.54	31.65	8.55	32.19	.27	39.61
*.56	32.83	9.19	33.39	.28	43.12

FLOW DEPTH FOR NORTH LANES ~ 100 YR STORM
(Q = 34.6 CFS)

D	FLOW WIDTH	AREA	PERIMETER	R	Q
.52	30.48	7.93	31.00	.26	35.83
*.51	29.90	7.62	30.41	.25	33.59

Copies to:

BPLW

Architects & Engineers, Inc.

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63 East Main Street
Suite 602
Mesa, AZ 85201
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Project AMEFCU

Subject EXISTING 10yr Flow Depth @ AP1

Project No. 92049 Date 7/12/93 By LAHM

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____

FLOW DEPTH FOR SOUTH LANES ~ 10 YR STORM
(Q = 27.0CFS)

D	FLOW WIDTH	AREA	PERIMETER	R	Q
.45	26.38	5.94	26.83	.22	24.11
*.47	27.55	6.47	28.02	.23	26.94

FLOW DEPTH FOR NORTH LANES ~ 10 YR STORM
(Q = 5.6CFS)

D	FLOW WIDTHS	AREA	PERIMETER	R	Q
.24	14.07	1.69	14.31	.12	4.56
*.26	15.24	1.98	15.50	.13	5.63
.28	16.41	2.30	16.69	.14	6.88

Copies to:

APPENDIX E

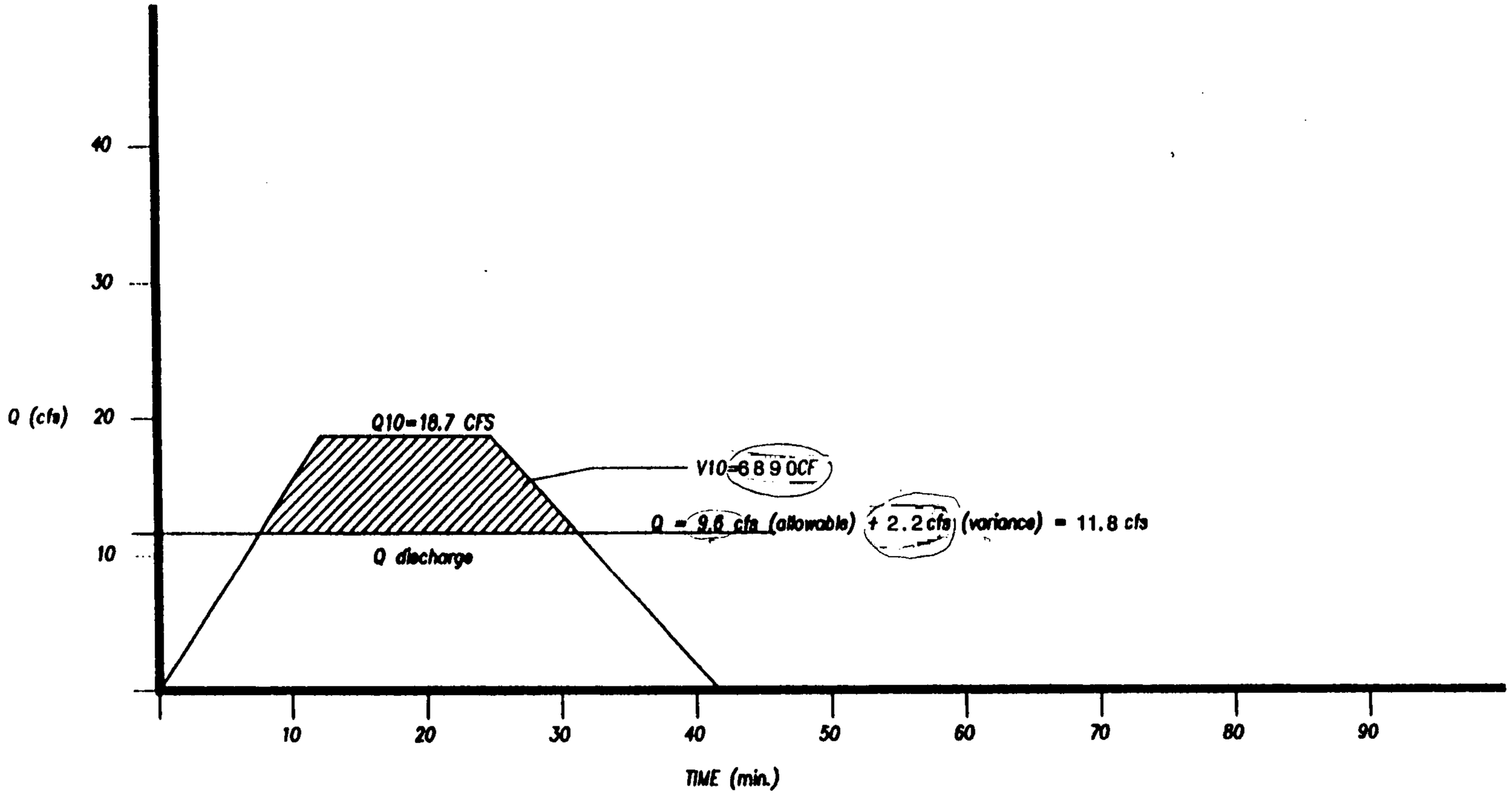
PLW
Architects & Engineers, Inc.
400 Lindbergh Boulevard NE
NC 28 Suite 400
63 East Main Street
Suite 600

PROJECT NAME
NMEFCU LOMAS 10 YEAR/6 Hr.

PROJECT NO.
990140

DATE

SUPPLEMENTARY DRAWING NO.
A



10 YEAR 6 HOUR STORM HYDROGRAPH

Precipitation Zone = 2

100 year 6 hr developed flows

Peak Discharge cfs/acre

A=	1.56
B=	2.28
C=	3.14
D=	4.7

Excess Precipitation

A=	0.53
B=	0.78
C=	1.13
D=	2.12

Basin OS-1A

Area (acres)= 1.07

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	95	1.0165	3.19181	0.09572041
D	5	0.0535	0.25145	0.00945166
Totals			3.44326	0.10517208

Basin OS-1B

Area (acres)= 2.05

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	32	0.656	2.05984	0.06177333
D	68	1.394	6.5518	0.24627333
Totals			8.61164	0.30804666

Basin OS-2A

Area (acres)= 1.19

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	100	1.19	5.593	0.21023333
Totals			5.593	0.21023333

Basin	OS–2B				
Area (acres)=	1.72				
Land Treatment		Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre–ft)
A		0	0	0	0
B		0	0	0	0
C		9	0.1548	0.486072	0.014577
D		91	1.5652	7.35644	0.27651866
Totals				7.842512	0.29109566

On-Site Basin

$Q_{100} = [.14(2.28) + .86(4.7)]1.5 = 6.54 cfs$

Precipitation Zone = 2

10 year 6 hr developed flows

Peak Discharge cfs/acre

A=	0.38
B=	0.95
C=	1.71
D=	3.14

Excess Precipitation

A=	0.13
B=	0.28
C=	0.52
D=	1.34

Basin OS-1A

Area (acres)= 1.07

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	95	1.0165	1.738215	0.04404833
D	5	0.0535	0.16799	0.00597416
Totals			1.906205	0.0500225

Basin OS-1B

Area (acres)= 2.05

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	32	0.656	1.12176	0.02842666
D	68	1.394	4.37716	0.15566333
Totals			5.49892	0.18409

Basin OS-2A

Area (acres)= 1.19

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	100	1.19	3.7366	0.13288333
Totals			3.7366	0.13288333

Basin	OS−2B				
Area (acres)=	1.72				
Land Treatment		Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre−ft)
A		0	0	0	0
B		0	0	0	0
C		9	0.1548	0.264708	0.006708
D		91	1.5652	4.914728	0.17478066
Totals				5.179436	0.18148866

Basin	Onsite			
Area (acres)=	1.5			
Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre−ft)
A	0	0	0	0
B	14	0.21	0.1995	0.0588
C	0	0	0	0
D	86	1.29	4.0506	0.14405
Totals			4.2501	0.20285

Summary of totals	
Peak Discharge (cfs)	20.571261
Volume (acre−ft)	0.7513345

Precipitation Zone = 2

100 year 6 hr

existing flows

Peak Discharge cfs/acre

A=	1.56
B=	2.28
C=	3.14
D=	4.7

Basin OS-1A

Area (acres)= 1.07

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	95	1.0165	3.19181	0.09572041
D	5	0.0535	0.25145	0.00945166
Totals			3.44326	0.10517208

Basin OS-1B

Area (acres)= 2.05

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	32	0.656	2.05984	0.06177333
D	68	1.394	6.5518	0.24627333
Totals			8.61164	0.30804666

Basin OS-2A

Area (acres)= 1.19

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	100	1.19	5.593	0.21023333
Totals			5.593	0.21023333

Basin	OS–2B				
Area (acres)=	1.72				
Land Treatment		Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre–ft)
A		0	0	0	0
B		0	0	0	0
C		9	0.1548	0.486072	0.014577
D		91	1.5652	7.35644	0.27651866
Totals				7.842512	0.29109566

Basin	Onsite				
Area (acres)=	1.5				
Land Treatment		Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre–ft)
A		0	0	0	0
B		0	0	0	0
C		56	0.84	2.6376	0.0791
D		44	0.66	3.102	0.1166
Totals				5.7396	0.1957

Summary of totals	
Peak Discharge (cfs)	31.230012
Volume (acre–ft)	1.11024775

Precipitation Zone = 2

10 year 6 hr
existing flows

Peak Discharge cfs/acre

A=	0.38
B=	0.95
C=	1.71
D=	3.14

Excess Precipitation

A=	0.13
B=	0.28
C=	0.52
D=	1.34

Basin OS-1A
Area (acres)= 1.07

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	95	1.0165	1.738215	0.04404833
D	5	0.0535	0.16799	0.00597416
Totals			1.906205	0.0500225

Basin OS-1B
Area (acres)= 2.05

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	32	0.656	1.12176	0.02842666
D	68	1.394	4.37716	0.15566333
Totals			5.49892	0.18409

Basin OS-2A
Area (acres)= 1.19

Land Treatment	Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre-ft)
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	100	1.19	3.7366	0.13288333
Totals			3.7366	0.13288333

Basin	OS−2B				
Area (acres)=	1.72				
Land Treatment		Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre−ft)
A		0	0	0	0
B		0	0	0	0
C		9	0.1548	0.264708	0.006708
D		91	1.5652	4.914728	0.17478066
Totals				5.179436	0.18148866

Basin	Onsite				
Area (acres)=	1.5				
Land Treatment		Percentage Treatment	Area (acres)	Discharge (cfs)	Volume (acre−ft)
A		0	0	0	0
B		0	0	0	0
C		56	0.84	1.4364	0.0364
D		44	0.66	2.0724	0.0737
Totals				3.5088	0.1101

Summary of totals	
Peak Discharge (cfs)	19.829961
Volume (acre−ft)	0.6585845

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Project NMEFCU

Subject

Project No. 92049 Date 7/20/93 By GCJ

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☑ To be typed
- ☐ _____

	EXISTING	PROPOSED
POND VOLUME	30,331 CF	8375
ON-SITE Q10	3.5 CFS	4.3 CFS
ON-SITE Q100	5.7 CFS	6.5 CFS
OFFSITE Q10	14.42 CFS	14.42 CFS
OFF-SITE Q100	22.04 CFS	22.04 CFS
DISCHARGE Q10	0.5 CFS	18.7 CFS (W/ponding 11.8 CFS Actual)
DISCHARGE Q100	18.5 CFS	28.6 CFS

Copies to:

Designing to Shape the Future

APPENDIX F

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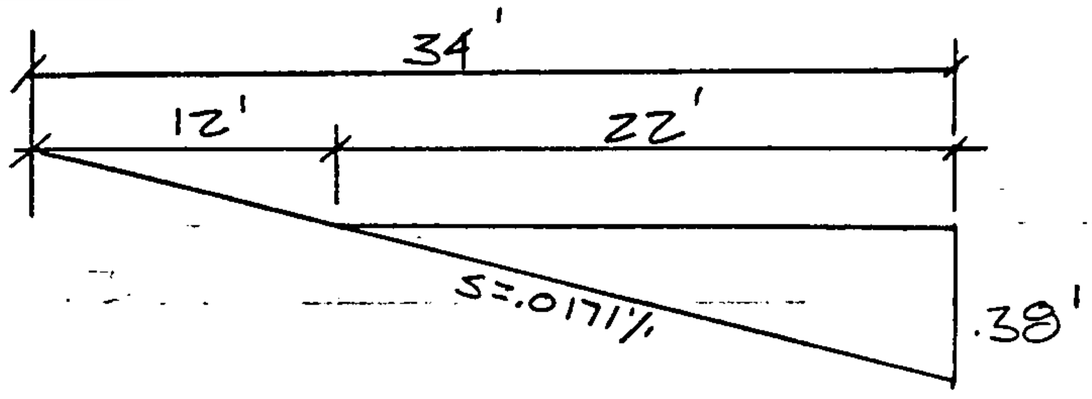
Project NMEFCU

Subject 10YR FLOWS @ AP-1

Project No. 92049 Date 7/14/93 By LAHM

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____



$A = \frac{1}{2}(22).38 = 4.15$

$P_W = 22 + .38 = 22.38$

$r_h = 4.15/22.38 = .19$

D=.38 WITH A FLOW WIDTH OF 22' (LEAVING A 12' DRY DRIVING LANE)

D = .38 A = 4.15

T = 22.0 P_W = 22.38 R_h = .19

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

$$Q = \frac{1.49}{.017} (4.15)(.19)^{2/3}(.016)^{1/2} = 15.2 \text{ CFS.}$$

∴ THE ALLOWABLE FLOW WITH A 12 FT DRIVING LANE IS 15.2 CFS (10yr)

EXISTING FLOW IN NORTH LOMAS LANE = 5.6 CFS (10yr)

ACTUAL ALLOWABLE DISCHARGE FROM PROJECT SITE

15.2 - 5.6 = 9.6 CFS

ACTUAL DEVELOPED FLOW FROM PROJECT SITE = 18.7 CFS

18.7 - 9.6 = 9.1 CFS @ V = 8460 CF to DETAIN

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Project NME FCU

Subject 10yr Flows @ AP-1

Project No. 92040 Date 7/23/03 By GCS

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____

EFFECT ON 12' DRIVING LANE (NORTH LANE LOMAS)

Q = 17.4 cfs (1 CFS ABOVE ALLOWABLE 15.2)

By Trial & Error;

@ street width = 23.4'

$$Q = \frac{1.49}{.017}(4.68)(.1967)^{2/3}\sqrt{.016} = 17.54 \text{ cfs}$$

34' (total 2 lane width) - 23.4' = 10.6'

ENCROACHES 12' DRY LANE BY 12' - 10.6' = 1.4'

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APPENDIX G

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Project NMEdFCH - University Branch

Subject Driveway / Culvert @ NE Corner

Project No. 92049 Date 4-17-93 By

☐ Memorandum
☐ Telephone record
☐ Note to the file
☐ Minutes of meeting
☐ To be typed
☐ _____

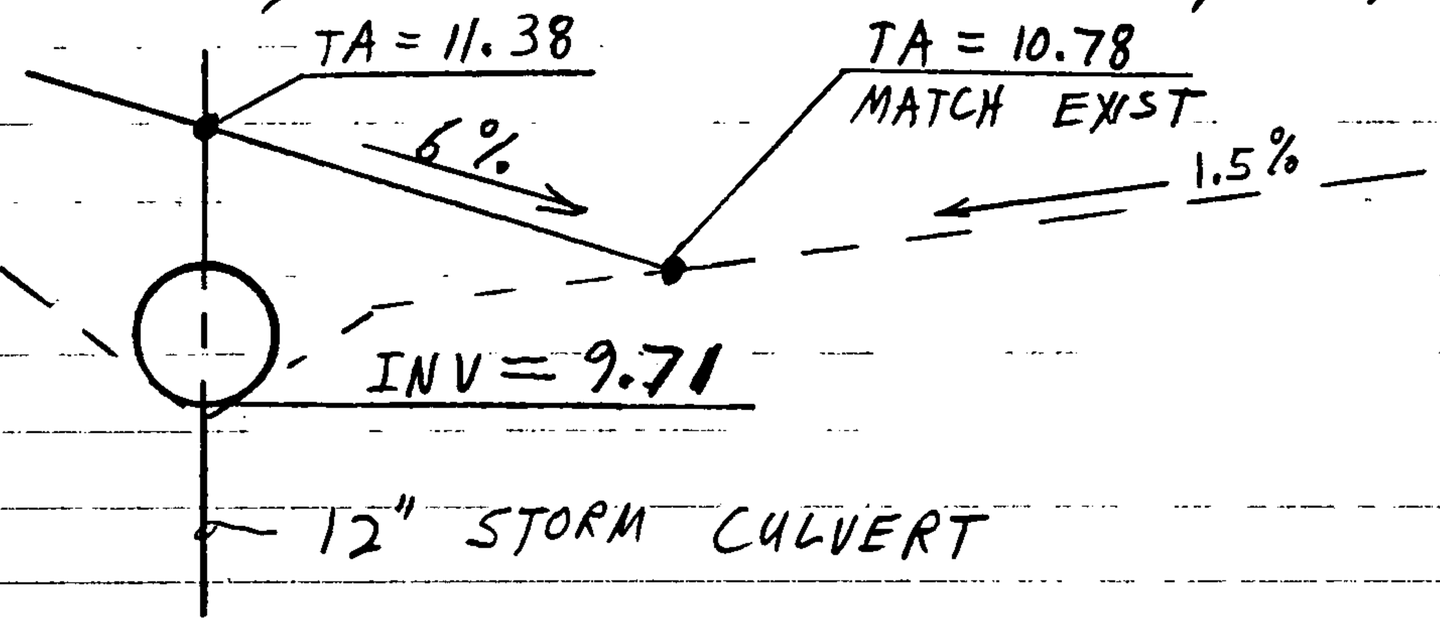
1) Basin OS-2B drains across/under this driveway at AP-4

$A = 1.72$ acres, % C = 9, % D = 91
Rainfall Zone # 2

Per Table 9, $Q_{100} = 1.72\ (0.09 \times 3.14 + 0.91 \times 4.70)$

$Q_{100} = 7.8$ cfs

2) Must pass water under driveway or around north end without flooding Rupert's Plumbing storage yard (NW Corner Top Asphalt = 11.38)



3) Capacity of culvert with water surface @ Elev 10.78 (i.e. no surface flows across north end of driveway)

$A_{12} = 0.79$ ft^2 $\quad H = 10.78 - (9.71 + 0.5) = 0.57'$

$Q = 0.60 A \sqrt{2gH} = 2.9$ cfs

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Project _____

Subject _____

Project No. _____ Date _____ By _____

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
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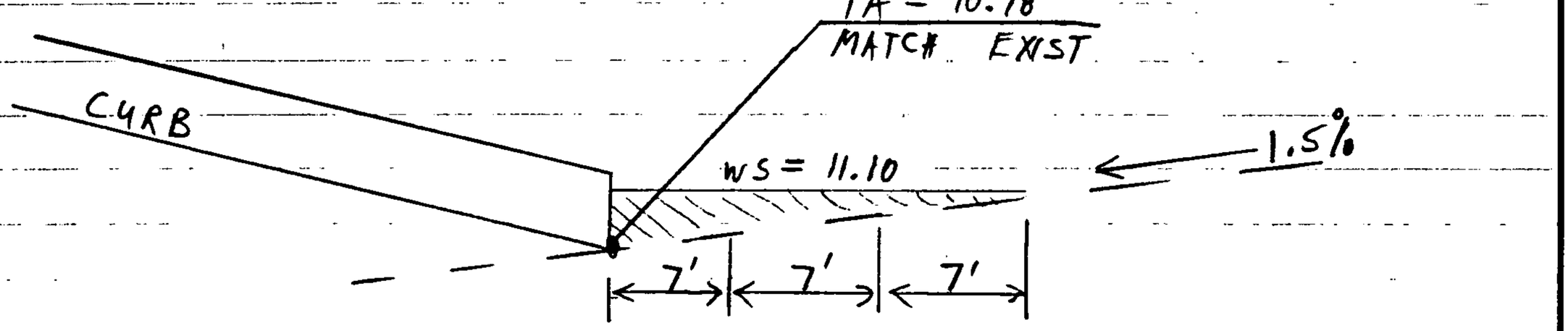
- ☐ To be typed
- ☐ _____

4) Balance of flows must go around north end of driveway without flooding Ruperts storage yard.

$Q_{SURFACE} = 7.8 - 2.9 = 4.9$ cfs



Assume water is 4" deep & check discharge by assuming 3 broad crested weirs of varying depths:

$Q = 2.65 \times 9 [0.27^{1.5} + 0.16^{1.5} + 0.05^{1.5}] = 5.1$ cfs

√'s OK ∴ Water surface will be at 11.10 leaving (11.36 − 11.10) 3" freeboard to Ruperts yard.

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APPENDIX H

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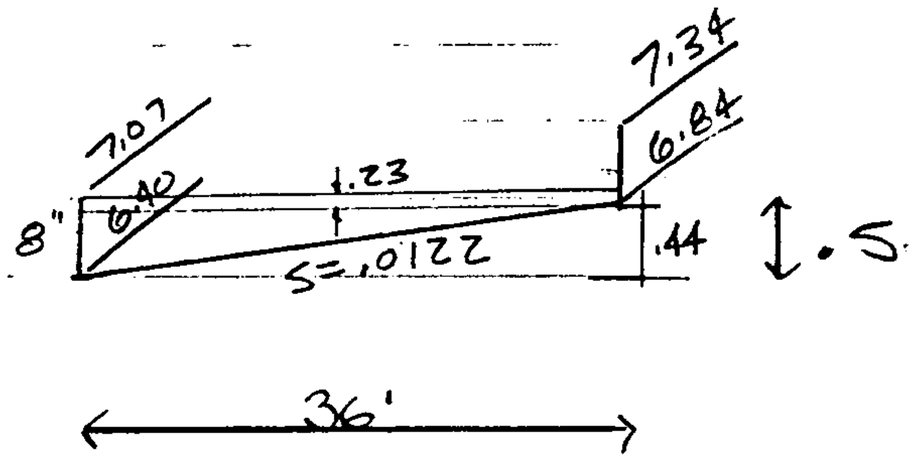
Project NMEFCU

Subject MCX Q THRU WEST DRIVE

Project No. 92049 Date _____ By _____

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____



D = .67
A = (.23)36 + ½(.44)36 = 16.20
P = 36.7
R = .44

$$Q = \frac{1.49}{.017}(16.2)(.44)^{2/3}(.028)^{1/2} = 137 \text{ CFS}$$

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Page of

APPENDIX I

BPLW

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Project NME FCU

Subject WIER CALCS

Project No. _____ Date _____ By _____

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____

$Q_{100} = 22$ CFS OFFSITE

$Q_{10} = 14.4$ CFS OFFSITE

$Q_{OUT} = 22 \text{ CFS} - 6.0\,(5\text{-}6\text{" pipes}) = 15.1 \text{ CFS}$

WIER LENGTH:

$$Q = \frac{2}{3} C \sqrt{g} h^{3/2} l =$$

$$= \frac{2}{3}(.6)\sqrt{(32.2)(0.1)^3}\, l$$

$$\therefore \quad l = \frac{15.1}{1.01} = 14.95', \text{ USE } 15.0'$$

WITH

$h = .2 \Rightarrow l = 15.0'$

SET WIER LENGTH TO ~~8-0~~ 15.0'

$$15.1 = \frac{2}{3}(.6)\sqrt{32.2\,h^3}\,(15.0)$$

$$\frac{15.1}{.67(.6)(15.0)} = \sqrt{32.2\,h^3} \Rightarrow h = 0.19'$$

SET WIER HEIGHT @ 8.3
TOP OF CURB @ 8.5
LENGTH OF WIER = 15.0'

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Project NMEFCU

Subject POND VOLUMES

Project No. 92040 Date 7/29/03 By GCJ

- ☐ Memorandum
- ☐ Telephone record
- ☐ Note to the file
- ☐ Minutes of meeting
- ☐ To be typed
- ☐ _____

POND VOLUMES

AREA OF WEIR = 343' x 5' = 1715 SF
VOLUME = 1715 SF x 1.0 ft = 3250 CF
WSEL = 8.40'

AREA OF POND IN ISLAND = 1989 SF
VOLUME = 1489 (1.5') = 2234 CF
WSEL = 6.15

AREA OF PARKING LOT POND (ABOVE ISLAND) = 11,530 SF
VOLUME = ½(.25)(11,530) = 1,442 CF
WSEL = 6.40

TOTAL POND VOLUME = 6935 CF

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Project _____

Subject _____

Project No. _____ Date _____ By _____

- ☐ Memorandum
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6" pipes @ wall "A" (wier)

For Q = 6.0 cfs total

With 6" pipe, A = .1963 ft², h = 1.0'

$Q = C A \sqrt{2gh}$ ✓

$= .6(.1963)\sqrt{64.4(1.0)}$

$= 1.3$ cfs (each)

$\frac{6.0}{1.3} = 5.3$ pipes → use 5-6" pipes at wall A of wier

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City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 31, 1994

Guy Jackson, P.E.
BPLW Architects & Engineers, Inc.
2400 Louisiana Blvd NE, Suite 400
Albuquerque, N.M. 87110

RE: ENGINEER'S CERTIFICATION FOR UNM BRANCH, N.M. ED. CREDIT UNION (J-15/D37)
RECEIVED AUGUST 23, 1994 FOR CERTIFICATE OF OCCUPANCY APPROVAL
ENGINEER'S STAMP DATED 8-19-94

Dear Mr. Jackson:

Based on the information included in the submittal referenced above, City Hydrology accepts the Engineer's Certification of grading & drainage and approves a permanent Certificate of Occupancy for this project.

If I can be of further assistance, you may contact me at 768-2727.

Sincerely,

John P. Curtin

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia

WPHYD/7731/jpc

PROJECT TITLE: UNM Branch, NM ED. FEDERAL CREDIT UNION -COMAS ZONE ATLAS/DRNG. FILE #: J15/D37

DRB #: _____ EPC #: _____ WORK ORDER #: 4744.80

LEGAL DESCRIPTION: Lots 1→5 Block 4 of Sigma Chi Addition

CITY ADDRESS: 801 Comas NE Albuq NM 87106

ENGINEERING FIRM: BPLW Arch & Engineers CONTACT: Guy Jackson

ADDRESS: 2400 Louisiana NE PHONE: 881-2759

OWNER: NM Educators Fed. Credit Union CONTACT: Sammi Nobles

ADDRESS: 6501 Indian School Road PHONE: _____

ARCHITECT: BPLW CONTACT: _____

ADDRESS: See above PHONE: _____

SURVEYOR: Surv-Tek CONTACT: Rusty Hugg

ADDRESS: 5643 Paradise BLVD PHONE: 897-3377 3366

CONTRACTOR: KDA CONTACT: Sammi Nobles

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
___ GRADING PLAN
___ EROSION CONTROL PLAN
X ENGINEER'S CERTIFICATION
___ OTHER _____

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ 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
X CERTIFICATE OF OCCUPANCY APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 8/10/94

BY: Guy Jackson

AUG 23 1994

BPLW

Architects & Engineers, Inc.

American Financial Center #5
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(505) 881-BPLW (2759)
FAX (505) 881-1230

August 19, 1994

Mr. Bernie Montoya, CE
Hydrology Department
City of Albuquerque Public Works
P.O. Box 1293
Albuquerque, NM 87103

Re: Certification of Occupancy for the Lomas Branch of New Mexico Educators Federal Credit Union (J-15/D37) BPLW Project No. 92049

Dear Bernie:

The following has been attached for review and issuance of a 30 day temporary Certificate of Occupancy (C.O.) for the above-referenced project:

- One drainage information sheet
- Two sets of plans with as-built elevations and certification language along with Dated Engineers Stamps(s)

Please contact me upon your issuance of the temporary C.O. The credit union is scheduled to open Monday August 22, 1994. Also, please call me if you have any questions or comments.

Sincerely,

BPLW ARCHITECTS & ENGINEERS, INC.

Guy C. Jackson, EIT
Civil Engineering

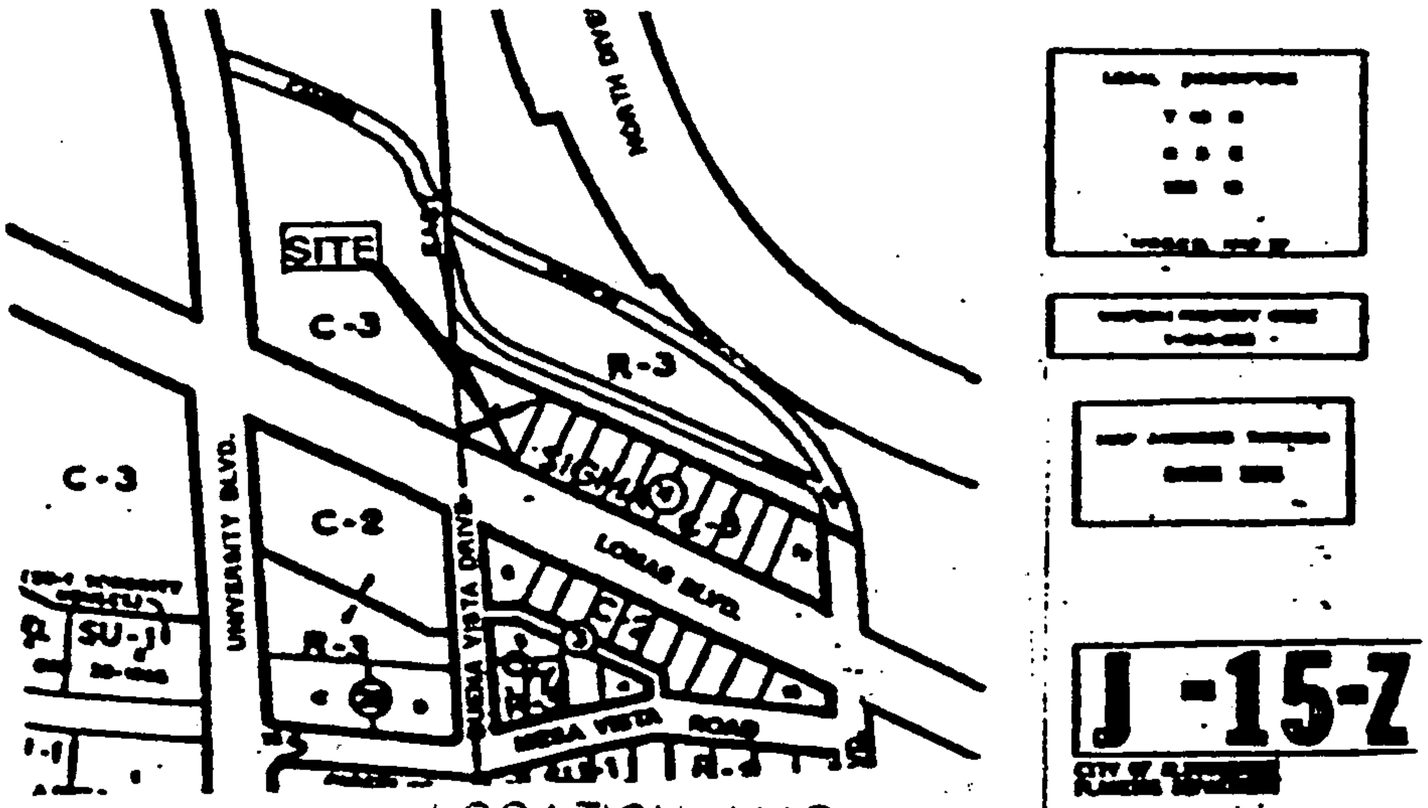
cc. Simmie Nobles
Gene Valentine
Maureen Walter

AUG 23 1994

TS

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY ROW



LOCATION MAP

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.

2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1985.

3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.

4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.

5. BACKFILL COMPATION SHALL BE ACCORDING TO ARTERIAL STREET USE.

6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

LEGAL DESCRIPTION OF PROPERTY SERVED: LOTS 1 THRU 5, BLOCK 4 SIGMA CHI ADDITION AND A VACATED PORTION OF BUENA VISTA DRIVE NE, CITY OF ALBUQUERQUE, BERNALLILLO COUNTY, NEW MEXICO

APPROVALS	NAME	DATE	TITLE:	
HYDROLOGY	John P Caughin	8-5-93		
INSPECTOR	Jeroy Gurley	2-25-94		
A.C.E./FIELD	Russell B. Dixon	3-3-94	PERMIT NO.	MAP NO.
			SHEET OF	

74
59

Melendez Conc - 942731

7/0] STEP

TC=11.27
TA=10.77
MATCH EXIST

INSTALL 25 LF 12"
STORM DRAIN WITH
FLARED END SECTIONS

BPLW

Architects & Engineers, Inc.

American Financial Center #5
2400 Louisiana Blvd. NE
Suite 400
Albuquerque, New Mexico 87110
(505) 881-BPLW (2759)
FAX (505) 881-1230

Officers
William L. Burns, AIA
Ronald L. Peters, AIA, APA
Joseph D. Long, Emeritus, AIA, PE
Bill J. Waters, AIA
Charlie M. Otero, AIA

Senior Vice Presidents
Jeffrey R. Bergmann, PE
John C. Crafton, PE
David A. Penasa, PE
Eugene A. Valentine, AIA, CCS

Vice Presidents
Berthan Baca-Daniels
Ronald Burstein, AIA
Marie L. Costley
Stephen L. Crawford, PE
Roger Easley, APA
Warren M. Emlen
John I. Manzanares, AIA
Tyler M. Mason, AIA, CCS
Jeffrey A. Stone, IES
Maureen M. Walter, AIA, CDT
W. Paul Waters, AIA

September 1, 1993

Wayne Friar, Project Manager
KDA Inc., Consultants & Construction Managers
1728 Sands Place
Marietta, Georgia 30067-8952

Re: New Mexico Educators Federal University Branch Credit Union
BPLW Project Number: 92049

Dear Mr. Friar:

After conferring with the City of Albuquerque's Hydrology Department about the Drainage Addendum Drawings referencing the site changes, due to the insertion of the revised Grading Plan stamped 9/3/93, it was agreed that since the Engineer (BPLW) is required to submit a Certification of Substantial Compliance upon the construction of the site, any changes that may occur will be shown on the As-Builts. Also, if any construction inspection questions arise as to the Drainage Addendum Detail Drawings, they will be referred to the Engineer (BPLW) for clarification.

We hope that this adequately address's your concerns and questions as to the Drainage Addendum Detail Drawings. If you have any additional questions or comments concerning this project, please contact me.

Sincerely,

BPLW ARCHITECTS & ENGINEERS, INC.

Guy Jackson, EI
Civil Engineering

xc: John Curtin, City of Albuquerque, Hydrology
Alan Martinez, City of Albuquerque, Hydrology
Simmie Nobles, KDA Inc., Consultants & Construction Managers
Gene Valentine, BPLW Architects & Engineers, Inc.
Maureen Walter, BPLW Architects & Engineers, Inc.
Jeffrey Bergmann, BPLW Architects & Engineers, Inc.

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN REVIEW COMMITTEE MEETING 08-05-93 1:30 P.M.

PROJECT: University Branch - NM Credit Union Project No. 4744.90

CONSULTANT BPLW

PRESENT: Billy Goolsby, DRC Chairman
Richard Dourte, Transportation Development
Robert Kane, Utility Development
~~John Curtin, Hydrology~~
Guy Jackson, Consultant
Ann Manwill, Consultant
Joe Luehring, City Utility Coordinator

COMMENTS:

1. Mark-ups and verbal comments were provided by Richard Dourte, John Curtin and the Chairman.

2. Robert Kane provided verbal comments which the Consultant noted.

3. The on-site street light will need to be moved or protected. This will be part of the building permit/on-site requirements.

The Consultant will make the appropriate corrections and submit the mylar, a print and mark-ups to the Master Scheduler to route for signatures.

BG:vgl(WP+125565)

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 4, 1993

Guy Jackson, P.E.
BPLW Architects & Engineers, Inc.
2400 Louisiana Blvd NE, Suite 400
Albuquerque, N.M. 87110

RE: GRADING PLAN FOR UNM BRANCH, N.M. ED. CREDIT UNION (J-15/D37)
ENGINEER'S STAMP DATED 8-3-93; RECEIVED AUGUST 3, 1993
FOR ROUGH GRADING, S.O.19 & BUILDING PERMIT APPROVAL

Dear Mr. Jackson:

Based on the information included in the submittal referenced above, City Hydrology APPROVES this project for Rough Grading Permit, S.O.19 and Building Permit.

An Erosion Control Plan for each construction phase must be approved by the Environmental Health Division to receive a Top Soil Disturbance permit.

Include a copy of the Grading Plan in the set of construction documents that are submitted to the "One-Stop" for the Building Permit.

A separate permit is required for construction within the right of way. A copy of this letter must be on hand when applying for the excavation permit.

Engineer's Certification of grading & drainage per DPM checklist must be approved before any Certificate of Occupancy is released.

If I can be of further assistance, you may contact me at 768-2727.

Sincerely,

John P. Curtin

John P. Curtin, P.E.
Civil Engineer/Hydrology

xc: Alan Martinez
Darlene Saavedra

WPHYD+7731;jpc

DRAINAGE INFORMATION SHEET

PROJECT TITLE: UNIVERSITY BRANCH NM EDUCATORS FEDERAL C.U. ZONE ATLAS/DRNG. FILE #: J-15/D37

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1-7, BLOCK 4, SIGMA CHI ADDITION

CITY ADDRESS: 1807 LOMAS N.E.

ENGINEERING FIRM: BPLW ARCHITECTS & ENGINEERS INC. CONTACT: GUY JACKSON

ADDRESS: 2400 LOUISIANA BLVD. N.E. ALBUQUERQUE, N.M. 87110 PHONE: 881-2759

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: BPLW CONTACT: FREDDIE MONTOYA

ADDRESS: SAME PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER _____

PRE-DESIGN MEETING:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

AUG - 3 1993
HYDROLOGY DIVISION

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SKETCH PLAT APPROVAL
- ____ 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
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- X OTHER S.O. 19 WORK (SPECIFY) (SEE SHT. GC.1 OF REPORT)

DATE SUBMITTED: 8/3/93

BY: Freddie P. Montoya

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 30, 1993

Guy Jackson, P.E.
BPLW Architects & Engineers, Inc.
2400 Louisiana Blvd NE, Suite 400
Albuquerque, N.M. 87110

RE: DRAINAGE REPORT FOR UNM BRANCH, N.M. ED. CREDIT UNION (J-15/D37)
ENGINEER'S STAMP DATED 7-29-93; RECEIVED JULY 29, 1993
FOR ROUGH GRADING, S.O.19 & BUILDING PERMIT APPROVAL

Dear Mr. Jackson:

Based on the information included in the submittal referenced above, City Hydrology APPROVES this project for Rough Grading Permit, S.O.19 and Building Permit.

An Erosion Control Plan for each construction phase must be approved by the Environmental Health Division to receive a Top Soil Disturbance permit.

Include a copy of the Grading Plan in the set of construction documents that are submitted to the "One-Stop" for the Building Permit.

A separate permit is required for construction within the right of way. A copy of this letter must be on hand when applying for the excavation permit.

Engineer's Certification of grading & drainage per DPM checklist must be approved before any Certificate of Occupancy is released.

If I can be of further assistance, you may contact me at 768-2727.

Sincerely,

John P. Curtin

John P. Curtin, P.E.
Civil Engineer/Hydrology

xc: Alan Martinez
Darlene Saavedra

WPHYD+7731;jpc

DRAINAGE INFORMATION SHEET

PROJECT TITLE: University Branch NM Educators Federal C.U. ZONE ATLAS/DRNG. FILE #: J-15 / D37

DRB #: — EPC #: — WORK ORDER #: —

LEGAL DESCRIPTION: Lots 1-7, Block 4, Sigma Chi Addition

CITY ADDRESS: Lomas Blvd at Buena Vista, NE

ENGINEERING FIRM: BPLW Arch & Eng, Inc CONTACT: Guy Jackson

ADDRESS: 2400 Louisiana Blvd, NE Suite 400 ABQ, NM 87110 PHONE: 881-2759

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER _____

PRE-DESIGN MEETING:

X YES
___ NO
___ COPY PROVIDED

RECEIVED
JUL 29 1993
HYDROLOGY DIVISION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ 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
X BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
X OTHER SO.19 Work (SPECIFY)
(SEE SHEET GC.1 OF REPORT)

DATE SUBMITTED: 7/29/93 ~~7/23/93~~

BY: Guy Jackson

Verbal Comments to
Guy Jackson

Provide: 1. Storage Hydrograph
calculations to determine
lefs excess.

2. Pond Volume Calcs.

3. Orface Calcs for
4" Drain thru Weir Wall.

Minimal Retention OK.

Clean up constructability
problem between plan
& details.

John P Austin
7-27-93

DRAINAGE INFORMATION SHEET

PROJECT TITLE: NM Educators Federal C.U. University Branch ZONE ATLAS/DRNG. FILE #: J-15 /D37

DRB #: — EPC #: — WORK ORDER #: —

LEGAL DESCRIPTION: Lots 1-7, Block 4, Siging Chi Addition

CITY ADDRESS: Lomas Blvd at Buena Vista, NE

ENGINEERING FIRM: BPLW Arch & Eng, Inc CONTACT: Guy Jackson

ADDRESS: 2400 Louisiana Blvd, NE Suite 400 PHONE: 881-2759
ABQ, NM 87110

OWNER: CONTACT:

ADDRESS: PHONE:

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER

PRE-DESIGN MEETING:

X YES
___ NO
___ COPY PROVIDED

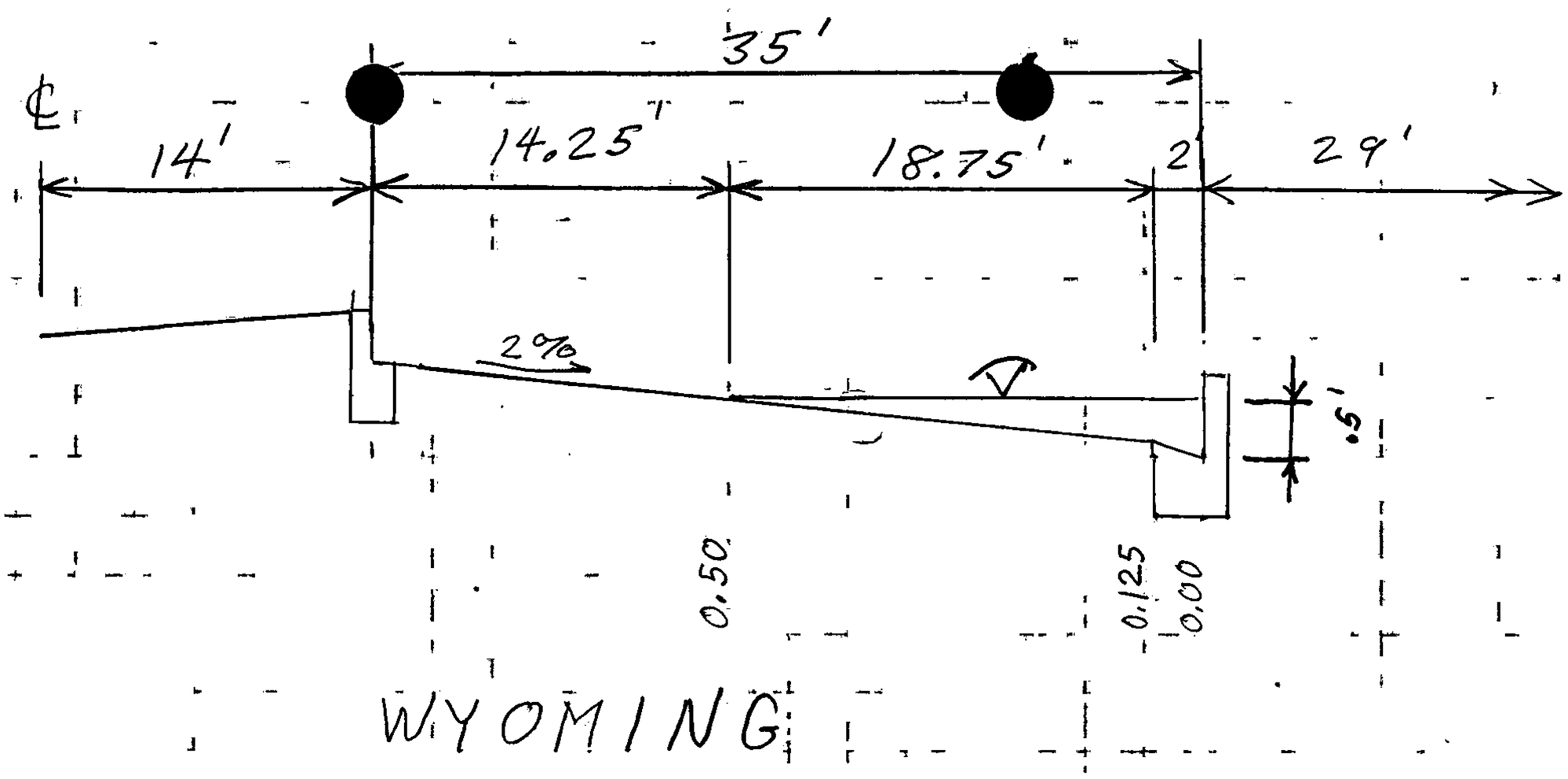
JUL 23 1993
HYDROLOGY DIVISION

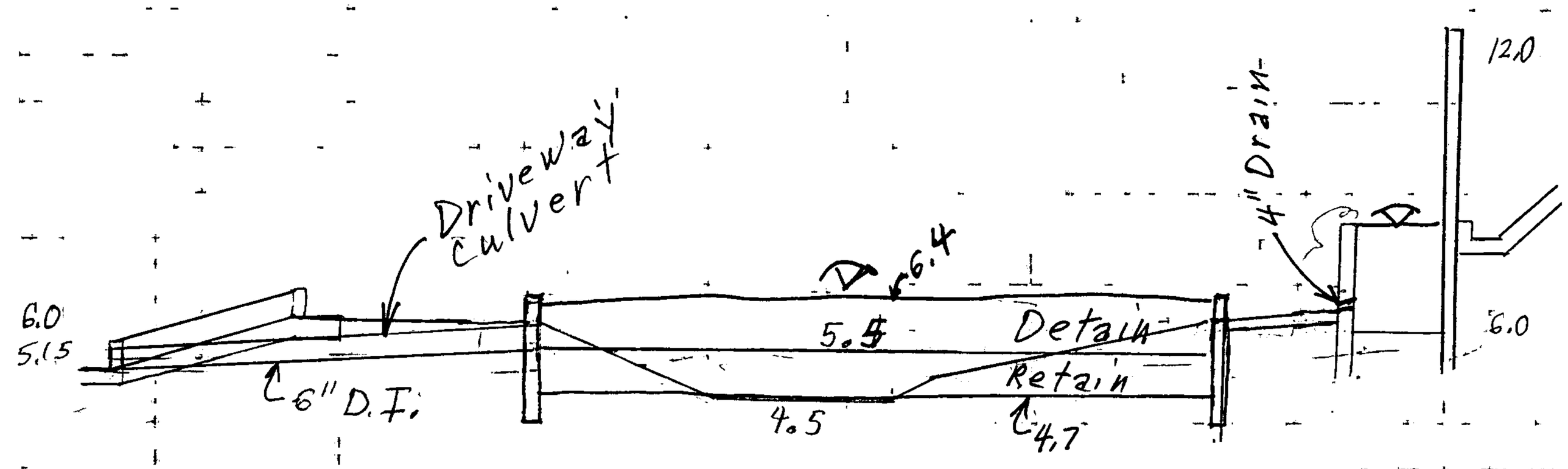
CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ 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
X BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
X OTHER SO.19 Work (SPECIFY)
(SEE SHEET GC.1 OF REPORT)

DATE SUBMITTED: 7/23/93

BY: Guy Jackson





Verbal Comments 7-20-93

~~BPLW can not retain water on-site.~~ BPLW must retain water on-site. 7-22-93

Try to Detain as much as possible & ask for Variance to cover difference. Ten Year storm must have a 12' lane dry each way on Arterial & Collector streets.

John Paustian

DRAINAGE INFORMATION SHEET

PROJECT TITLE: NMEFCU ZONE ATLAS/DRNG. FILE #: J-15-Z /D37

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 1 THRU 5, BLOCK 4 SIGMA CHI

CITY ADDRESS: LOMAS BLVD AT BUENA VISTA

ENGINEERING FIRM: BPLW CONTACT: JEFF BERGMANN

ADDRESS: 2400 LOUISIANA NE SUITE 400 87106 PHONE: 881-2759

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT (RESUBMITTAL)

____ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

____ GRADING PLAN

____ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

____ OTHER _____

PRE-DESIGN MEETING:

____ YES

____ NO

____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ 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

X BUILDING PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

____ GRADING PERMIT APPROVAL

____ PAVING PERMIT APPROVAL

____ S.A.D. DRAINAGE REPORT

____ DRAINAGE REQUIREMENTS

____ OTHER _____ (SPECIFY)

DATE SUBMITTED: 7-15-93

BY: BPLW

RECEIVED
JUL 15 1993
HYDROLOGY SECT.

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 8, 1993

Steve Crawford, P.E.
BPLW Architects & Engineers, Inc.
2400 Louisiana Blvd NE, Suite 400
Albuquerque, N.M. 87110

RE: GRADING PLAN FOR UNM BRANCH, N.M. ED. CREDIT UNION (J-15/D37)
RECEIVED JUNE 7, 1993 FOR ROUGH GRADING PERMIT
ENGINEER'S STAMP DATED 6-7-93;

Dear Mr. Crawford:

Based on the information included in the submittal referenced above, City Hydrology APPROVES this project for Rough Grading Permit.

An Erosion Control Plan for the rough grading phase must be approved by the Environmental Health Division to receive a Top Soil Disturbance permit.

BE AWARE, further grading may be required to satisfy the One Lane Dry criteria for a ten year storm.

If you have any questions about this project you may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer/Hydrology

xc: Alan Martinez

WPHYD+7731;jpc

PROJECT TITLE: University Branch NM Educators Federal C.U. ZONE ATLAS/DRN: FILE #: J-15/D37

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Lots 1-7, Block 4, Sigma Chi Addition

CITY ADDRESS: Lomas Blvd @ Buena Vista

ENGINEERING FIRM: BPLW Arch & Eng, Inc CONTACT: Steve Crawford

ADDRESS: 2400 Louisiana Blvd ABQ, NM 87110 PHONE: 881-2759

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ 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 APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: June 7, 1993

BY: _____

RECEIVED
JUN 7 1993
HYDROLOGY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 3, 1993

Steve Crawford, P.E.
BPLW Architects & Engineers, Inc.
2400 Louisiana Blvd NE, Suite 400
Albuquerque, N.M. 87110

RE: DRAINAGE REPORT FOR U. BRANCH, N.M. ED. CREDIT UNION (J-15/D37)
ENGINEER'S STAMP DATED 4-20-93; RECEIVED APRIL 23, 1993
FOR GRADING, S.O.19 & BUILDING PERMIT

Dear Mr. Crawford:

Based on the information included in the submittal referenced above, City Hydrology REJECTS this project for Grading, S.O.19 & Building Permit.

The following comments must be addressed before this project will be approved:

1. Use n = 0.017 instead of 0.014. Cross section for Lomas should extend across entire right of way. If cross section is symmetrical, then one set of lanes can be considered to carry half of the capacity. Add elevations at Buena Vista & Lomas so that it can be determined if OS-3 is carried in the North Lane or the South Lane. Add a table comparing the existing conditions to the proposed conditions at AP-1. Compare flow rate, velocity and depth.

2. On the Grading Plan, indicate what improvements are required at AP-5. Masonry block cells are roughly 5"h x 6"w. How do you plan to create 8" x 8" holes in the wall? Water blocks at west entrance are marginal. Considering the capacity problems on Lomas wouldn't it be better to put in an effective water block at the driveway and release the runoff gradually through sidewalk culverts?

3. Details of drainage improvements were not included in this submittal. When will they be reviewed? Cut a section through the slope paving on the north side.

4. The signature block for the S.O.19 must be on the Grading Plan. City Hydrology will only sign for Drainage Improvements. Add note 6 from p.116 DPM Chapter 22.7.

xc: Fred Aguirre

If you have any questions about this project, you may contact me at 768-2727.

Sincerely

John P. Curtin, P.E.
PWD/Hydrology

WPHYD+7731;jpc

DRAINAGE INFORMATION SHEET

PROJECT TITLE: University Branch NM Educators Federal C.U. ZONE ATLAS/DRNG. FILE #: J-15/D87

DRB #: — EPC #: — WORK ORDER #: —

LEGAL DESCRIPTION: Lots 1-7, Block 4, Siging Chi Addition

CITY ADDRESS: Lomas Blvd at Buena Vista, NE

ENGINEERING FIRM: BPLW Arch & Eng, Inc CONTACT: Steve Crawford

ADDRESS: 2400 Louisiana Blvd, NE Suite 400 ABQ, NM 87110 PHONE: 881-2759

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER _____

PRE-DESIGN MEETING:

- X YES
- ___ NO
- X COPY PROVIDED

RECEIVED
APR 23 1993
HYDROLOGY SECTION

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ 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
- X BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- X OTHER SO.19 Work (SPECIFY) (SEE SHEET GC.1 OF REPORT)

DATE SUBMITTED: April 22, 1993

BY: [signature]

7731

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: J 15 DATE: 1/8/93

EPC NO.: _____ DRB NO.: _____ ZONE: _____

SUBJECT: New Mexico Educators Credit Union

STREET ADDRESS: _____

LEGAL DESCRIPTION: I-5 SIGMA Ch.

APPROVAL REQUESTED:

____	PRELIMINARY PLAT	____	FINAL PLAT
____	SITE DEVELOPMENT PLAN	X	BUILDING PERMIT
____	GRADING/PAVING PERMIT	____	OTHER

WHO	REPRESENTING
ATTENDANCE: Steve Crawford	
Fred J. Aguirre	

FINDINGS:

- BUILDING PERMIT APPROVAL WILL REQUIRE AN APPROVED DRAINAGE REPORT.

THE MAJOR ITEM OF CONCERN TO BE ADDRESSED WITH THIS REPORT IS OWNERSHIP OF THE EXISTING UNLINED CHANNEL / STORM DRAIN AND ITS CAPACITY AND ANY EXISTING/FUTURE EROSION ~~AND SEDIMENTATION~~ PROBLEMS. ~~THE~~ DISCHARGE RATE WILL BE DETERMINED ~~WITH~~ BASED ON THE DOWNSTREAM SITUATION.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Fred J Aguirre SIGNED: Steve Crawford

TITLE: _____ TITLE: _____

DATE: 1/8/93 DATE: 1-8-93

NOTE PLEASE PROVIDE A COPY OF THIS PRE-DESIGN FORM WITH THE DRAINAGE SUBMITTAL.