COMMENTS: • See Sht 1 & Sht C-3 for comments • Please provide the Original DRB (stamped) Site Plan because this AA does not demonstrate full dimensions and does not reflect the circulation layout notes. AA

UTILITIES (505) 924-3989	DATE RECEIVED:
PLANS DISAPPROVED: JM	DATE: 3-27-12
PLANS APPROVED:	DATE:
COMMENTS:	
PROVIDE A STATEMENT FROM THE F.M.O. REGARDING THE MINIMUM FLOW REQUIREMENTS. INSTALLATION OF A NEW HYDRANT MAY BE NECESSARY	

HYDROLOGY (505) 924-3986	DATE RECEIVED:
PLANS DISAPPROVED:	DATE:
PLANS APPROVED: Curtis Cherne	DATE: 4-3-12
COMMENTS:	
For Building Permit approval Engineer to confirm total site runoff and certify volume of ponds.	

BP →

PLANNING DIRECTOR (505) 924-3860	DATE RECEIVED:
PLANS DISAPPROVED:	DATE:
PLANS APPROVED:	DATE:
COMMENTS:	

Revised: July 2011 (Return form with plat / site development plan)

CITY OF
Albuquerque

September 16, 1996

Martin J. Chávez, Mayor

Ronald Bohannan
Tierra West Development
4421 McCleod NE
Suite D
Albuquerque, NM 87109

RE: ROCKY MOUNTAIN R.V. (L22-D35) DRAINAGE REPORT SUBMITTAL FOR SITE DEVELOPMENT PLAN FOR SUBDIVISION APPROVAL, BUILDING PERMIT APPROVAL, AND GRADING PERMIT APPROVAL. ENGINEER'S STAMP DATED 9-13-96.

Dear Mr. Bohannan:

Based on the information provided on your August 20, 1996 submittal, the above referenced project is approved for Site Development Plan for Building Permit approval. Prior to Building or SO #19 Permit approvals, please address the following comments:

1. An SO #19 Permit is required for this project due to the work proposed in the right-of-way. Please be certain to show the required notes and sign-off block on the plan sheet. Also, provide two copies of the Grading and Drainage plan.

2. Shown on your plan sheet is a distance and bearing line from catch basin 2 to the corner of Western Skies and Central. Please change the line type. It looks very similar to a storm drain line.

3. If you desire, you can use an 12-inch pipe with a 10-inch orifice to tie into the back of the existing inlet on Western Skies.

4. Are your sidewalk culverts in a submerged condition? If not, I believe you can get away with using two sidewalk culverts instead of three

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *ROCKY MOUNTAIN R.V.* ZONE ATLAS/DRNG. FILE #: *L-22 / D35*

DRB #: *94-509* EPC #: *Z-94-92* WORK ORDER #:

LEGAL DESCRIPTION: *TRACT B1A1B DORADO VILLAGE*

CITY ADDRESS: *12700 CENTRAL AVENUE, N.E.*

ENGINEERING FIRM: *TIERRA WEST DEV. MAGT. SER.* CONTACT: *RONALD R. BOHANNAN*

ADDRESS: *4421 McCLEOD NE SUITE #D, 87109* PHONE: *(505) 883-7592*

OWNER: *ROCKY MOUNTAIN R.V.* CONTACT: *JUDY ROBERTS*

ADDRESS: *11109 CENTRAL, NW, 87123* PHONE: *(505) 292-7800*

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: *PRECISION SURVEYING* CONTACT: *LARRY MADRANO*

ADDRESS: *2929 COORS BLVD. NW SUITE 105, ALBUQ. NM 87120* PHONE: *(505) 839-0569*

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 9-13-96

X NO

___ COPY PROVIDED @ 50# Pl
② change curb type

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAN APPROVAL

___ PRELIMINARY PLAT APPROVAL

X 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

___ OTHER ___ (SPECIFY)

RECEIVED

AUG 2 0 1996

DATE SUBMITTED: *8/20/96*

BY: *SARA McCOLLAM*

A0012

DRAINAGE REPORT
For

ROCKY MOUNTAIN R.V. & MARINE SALES AND SERVICE

Prepared for :

Rocky Mountain R.V.
11109 Central Avenue, N.E.
Albuquerque, New Mexico 87123

Prepared by:

Tierra West Development Management Services
4421 McLeod RD. N.E., Suite D
Albuquerque, New Mexico
(505) 883-7592

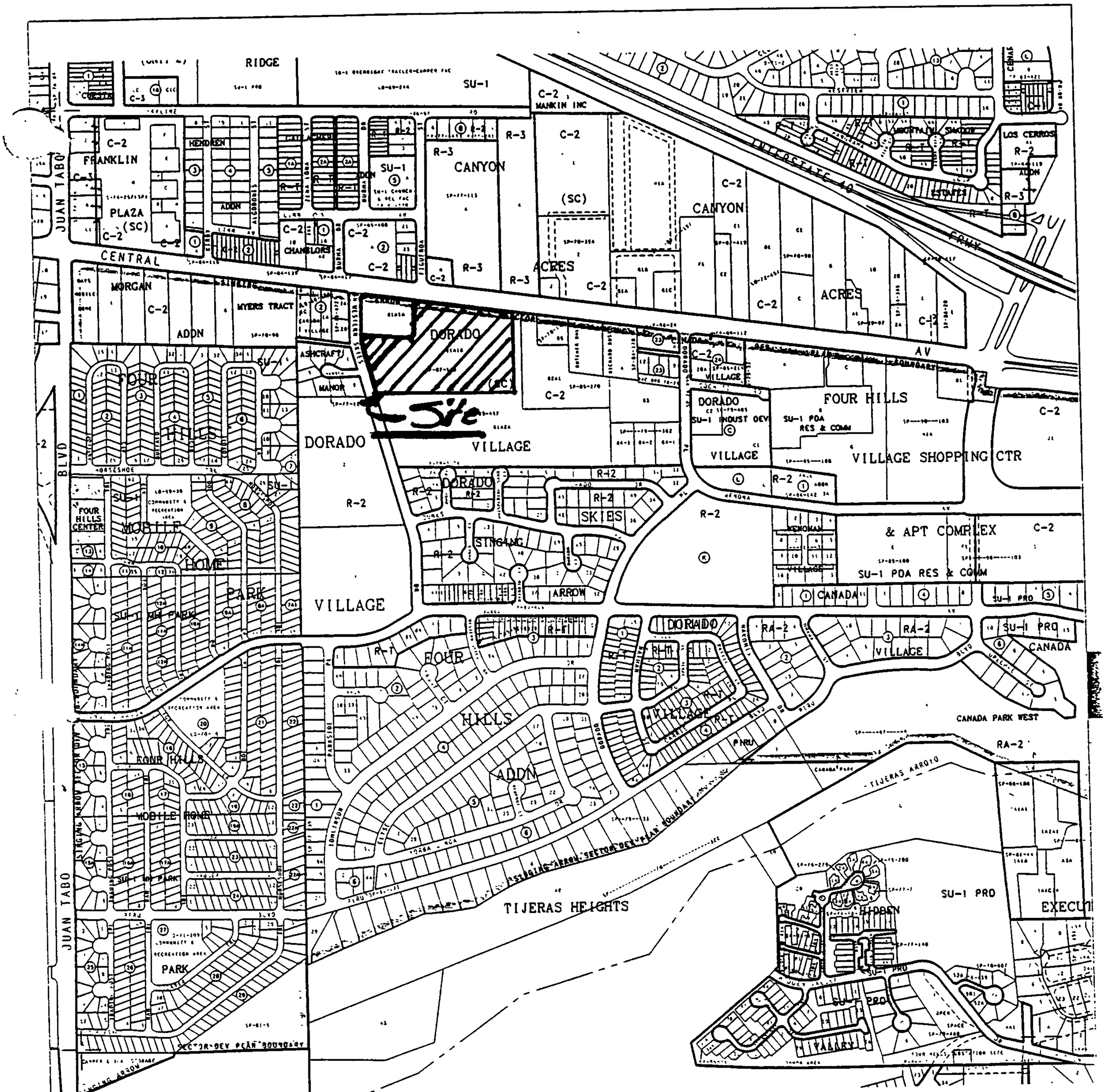
January, 1996
Revised August 1996

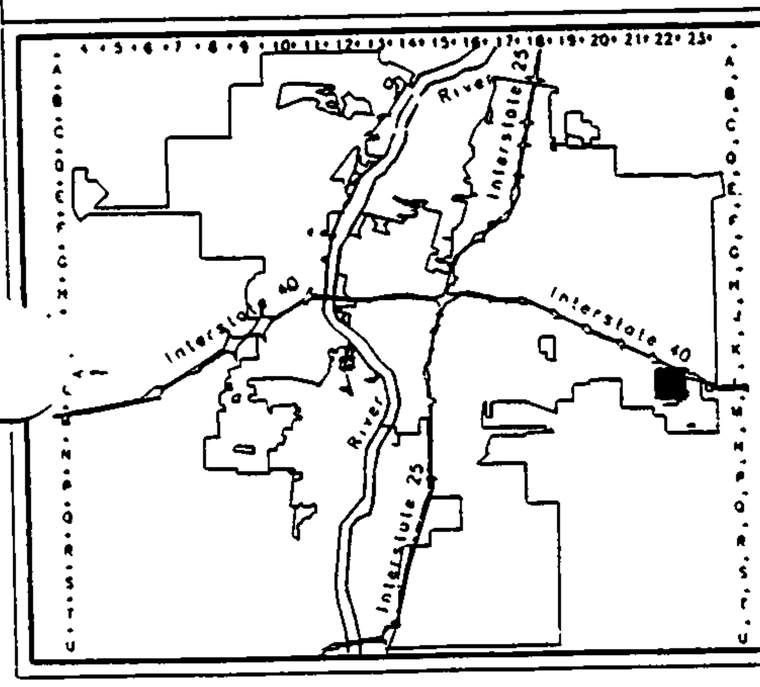
I certify that this report was prepared under my supervision, and I am a registered Professional Engineer in good standing with the State of New Mexico.

Ronald R. Bohannan

RONALD RAY BOHANNAN REGISTERED PROFESSIONAL ENGINEER NEW MEXICO 7868 9-17-96 No. 7868

TABLE OF CONTENTS





North

750 375 0 750

Scale 1" = 750'

A Municipal Geographic Information System
City of Albuquerque

LEGAL DESCRIPTION

T10N

R4E

SEC 27

UNIFORM PROPERTY CODE

1-022-056

L-22-Z

LOCATION

The site is located at the southwest corner of a 42' private drive, Whispering Pines and Central Avenue. The site lies just east of Western Skies on the South side of Central Avenue. The street address is 12700 Central Avenue and comprises Lot B1A1B, Dorado Village, containing approximately 8.7303 acres. The intent of this report is to present the drainage management plan for Building Permit Purpose and Site Development Plan approval. All applicable ordinances and the Development Process Manual were utilized for this analysis.

DESIGN METHOD

The method used will be and is designated in Part A for smaller water sheds under 40 acres, as described in the Design Procedures Manual. The runoff was calculated based on 100-year, 6 hour storm. The site lies within Zone 3, but to be more conservative, we have used the Zone 4 rain fall data in our runoff calculations due to proximity of zone line.

EXISTING CONDITIONS

The site lies on the south side and adjacent to Central Avenue and lies immediately east of Western Skies. A private access road (Whispering Pines) leads into a developed apartment complex on the east. Whispering Pines on the upstream development redirects and protects the site from any off-site flow from entering the site. Currently, flows on site sheet flows west to Western Skies and off-site.

The site is partially developed with the site having approximately six inches (6") of base course over the entire site. Some landscaping, while sparse, is present along the south and eastern edge of the site. The existing flow rate is 25.48 cfs. According to FEMA MAP 350002-0037C the site dose not fall within the flood zone. See attached FEMA MAP.

FEMA MAP 350002-0037C

PROPOSED MANAGEMENT PLAN

The City of Albuquerque has prepared storm drainage improvements in Central Avenue and Western Skies to handle localized flooding. This revised drainage plan proposes to discharge the runoff from the site into the new 24" storm drain system in Western Skies which connects to a 30" storm drain system in Central Avenue.

The site is divided into three proposed drainage basins. Basin 1 contains the eastern two-thirds of the site. This basin has a developed runoff flow of 31.16 cfs. It will drain into a parking lot pond (Pond 1) located on the south side of the basin. Two single 'D' catch basins will drain Pond 1 at a rate of 7.65 cfs through an 12" PVC pipe. The runoff will be routed to Pond 2 located on the south side of Basin 2. Basin 2 has a developed runoff rate of 9.32 cfs. The flow from Basin 2 will drain to Pond 2 located on the west side of the site A 12" RCP pipe with a 10.25" orifice plate will route the flow to the existing 24" storm drain system in Western Skies. The pond will drain at a rate of 5.53 cfs which is less than the historical flow of 25.48 cfs. Basin 3 has a developed runoff flow of 3.38 cfs. This basin contains the northwest corner of the site. The developed flows will drain to the northwest and be conveyed into Western Skies Drive through three 12" sidewalk culverts. In case of events larger than a 100 year storm, Pond 1 will have an 30 foot wide emergency spillway and Pond 2 will have 12 foot wide emergency spillway

SUMMARY 5.53+3.38= 8.91 cfs

There are three proposed basins on the site. Basin 1 has a runoff flow rate of 31.16 cfs, Basin 2 has a runoff flow rate of 9.32 cfs, and Basin 3 has a runoff rate of 3.38 cfs. Two detention ponds will limit the flow rate to the existing storm drain line in Western Skies to 5.53 cfs. The combined discharge from the sidewalk culverts and the pond is 8.91 cfs.

This site comprised approx 35% of the entire basin that drains to ~~this basin~~ Western Skies. The pipe in Western Skies had a capacity of ±23cfs
∴ (.35)(23) = Q_{allow} — 8.05cfs which is close enough

Runoff
Calculations

SAMPLE CALCULATIONS FOR ROCKY MOUNTAIN RV

The site is @ Zone 4

LAND TREATMENT

Treatment D:

D = 90 %

Treatment B:

B = 10 %

DEPTH (INCHES) @ 100-YEAR, 6-HR STORM

P_{60} = 2.23 inches

P_{360} = 2.90 inches

P_{1440} = 3.65 inches

DEPTH (INCHES) @ 10-YEAR, 6-HR STORM

P_{60} = 2.23 x 0.667
= 1.49 inches

P_{360} = 1.93

P_{1440} = 2.43

Runoff
Summary Tables
for
Proposed and Existing
Drainage Basins

DRAINAGE BASINS

Existing

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	380291.87	8.7303	0.013641

Proposed

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	270872.96	6.2184	0.009716
2	80943.32	1.8582	0.002903
3	29197.36	0.6703	0.001047

RUNOFF CALCULATION RESULTS

Existing

BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	25.48	12.44	0.783	0.325

Proposed

SUB-BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	31.16	20.41	1.288	0.807
2	9.32	6.11	0.385	0.241
3	3.38	2.21	0.139	0.087

Storm Sewer

DROP INLET CALCULATIONS

ORIFICE EQUATION

Q = CA sqrt(2gH)

C = 0.6

g = 32.2

POND	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
1	2 Single 'D'	4.60	31.16	1.9792	2
2	Single 'D'	2.30	9.32	0.7083	1.5

STORM DRAIN INLET

EFFECTIVE AREA ASSUMING A 50% CLOGGING FACTOR

SINGLE 'D':

Area at the grate:

L = 38.375" - 7 (1/2" $_{\text{middle bars}}$)
= 34.875"
= 2.906'

W = 25.5" - 13 (1/2" $_{\text{middle bars}}$)
= 19"
= 1.583'

Area = 1.583 x 2.906
= 4.601 ft^2

Effective Area = 4.601- .5 (4.601) $_{\text{Clogging Factor}}$
= 2.30 ft^2 at the grate

DOUBLE 'D':

Area at the grate:

L = 76.75" - 14 (1/2" $_{\text{middle bars}}$) - 6" $_{\text{center piece}}$
= 63.75"
= 5.3125'

W = 25.5" - 13 (1/2 $_{\text{middle bars}}$)
= 19"
= 1.583'

Area = 1.583' x 5.3125'
= 8.410 ft^2

Effective Area = 8.410 - .5 (8.410)
= 4.21 ft^2

PIPE VELOCITY

(Pipes flowing full)

12" Pipe Connecting Pond 1 and Pond 2:

$V = Q/A$

$$V = \frac{7.65}{\left(1^2 * \frac{\pi}{4}\right)}$$

$V = 9.74$ cfs

12" Outfall Pipe from Pond 2:

$V = Q/A$

$$V = \frac{5.53}{\left(1^2 * \frac{\pi}{4}\right)}$$

$V = 7.04$ cfs

Sidewalk Culvert

Orifice Equation

$$Q = CA\sqrt{2gH}$$

This is not a submerged condition.

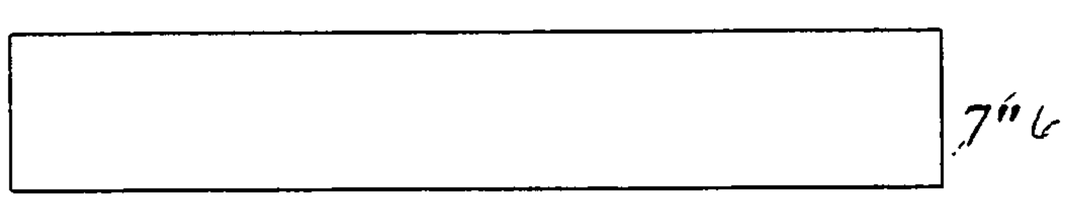
C= 0.6
A = (7*12)/144
= 0.5833 ft^2
g = 32.2
H = 7/(2*12)
= 0.29167
Q = flow (cfs)

$$Q = 0.6 * 0.5833\sqrt{2 * 32.2 * 0.29167}$$

$$Q = 1.52 \ cfs$$

Basin 2 = 3.38 cfs
3.38 cfs/ 1.52 cfs = 2.22

Use 3 sidewalk culverts



P-2

$$Q = \frac{1.49}{.013}(.5)(.5/2)^{2/3}(.02)^{1/2} = 3.22$$

Since free discharge is occurring in this basin. 3 sidewalk culverts is OK. However, 2 is all that is needed.

Ponding Calculations

VOLUME CALCULATIONS

POND 1

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = $Ab * D + 0.5 * C * D^2$

C = (At - Ab) / Dt

Ab =	13.59	(@ elevation 5567.00)
At =	35,309.72	(@ elevation 5569.00)
Dt =	2.00	
C =	17648.07	

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
64	0	0	0.0000
67.00	3	0.0009	5.9794
67.20	3.2	0.0091	6.2139
67.40	3.4	0.0335	6.4400
67.60	3.6	0.0740	6.6583
67.80	3.8	0.1308	6.8698
68.00	4	0.2038	7.0749
68.20	4.2	0.2930	7.2742
68.40	4.4	0.3984	7.4682
68.60	4.6	0.5200	7.6573
68.80	4.8	0.6578	7.8418
69.00	5	0.8118	8.0221

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6	
Diameter (in	12	
Area (ft^2)=	0.785398	
g =	32.2	
H (ft) =	Depth of water above center of orifice	
Q (cfs)=	Flow	

VOLUME CALCULATIONS

POND 2

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2

C = (At - Ab) / Dt

Ab =	6.80	(@ elevation 5559.50)
At =	21,976.07	(@ elevation 5560.00)
Dt =	0.50	
C =	43938.54	

Ab =	21,976.07	(@ elevation 5560.00)
At =	25,114.04	(@ elevation 5561.00)
Dt =	1.00	
C =	3137.97	

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
60.5	0	0	0.0000
63.50	3	0.0005	4.4257
63.70	3.2	0.0207	4.5945
63.90	3.4	0.0812	4.7573
64.00	3.5	0.1266	4.8367
64.20	3.7	0.2290	4.9916
64.40	3.9	0.3342	5.1418
64.60	4.1	0.4423	5.2878
64.80	4.3	0.5533	5.4299
65.00	4.5	0.6672	5.5683

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6	
Diameter (in	10.25	
Area (ft^2)=	0.573027	
g =	32.2	
H (Ft) =	Depth of water above center of orifice	
Q (CFS)=	Flow	

EMERGENCY SPILLWAY

Pond 2

Weir Equation:

$$Q=CLH^{3/2}$$

Q= 9.32 cfs
C = 2.95
H = 0.5 ft
L = Length of weir

$$L=\frac{9.32}{2.95(0.5)^{3/2}}$$

L = 8.94 ft
Use 9.00 feet for length of weir

Pond 1

Weir Equation:

$$Q=CLH^{3/2}$$

Q= 31.16 cfs
C = 2.95
H = 0.5 ft
L = Length of weir

$$L=\frac{31.16}{2.95(0.5)^{3/2}}$$

L = 29.87 ft
Use 30.00 feet for length of weir

AHYMO
Runoff Input
and
Summary Output
for
Proposed and Existing
Drainage Basins

```
**********************************************************************
*                        ROCKY MOUNTAIN RV                           *
**********************************************************************
*                          6-HR STORM                                *
**********************************************************************
*              EXISTING CONDITIONS 100-YEAR STORM                    *
**********************************************************************
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
**********************************************************************
*               EXISTING CONDITIONS 10-YEAR STORM                    *
**********************************************************************
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                     RAIN DAY=2.43 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=110.1 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
*
**********************************************************************
*           PROPOSED/FUTURE CONDITIONS 100-YEAR STORM                *
**********************************************************************
*
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.009716 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* BASIN 2
*
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.001047 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* BASIN 3
*
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.002903 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
**********************************************************************
*            PROPOSED/FUTURE CONDITIONS 10-YEAR STORM                *
**********************************************************************
```

```
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                     RAIN DAY=2.43 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=110.1 AREA=0.009716 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* BASIN 2
*
COMPUTE NM HYD       ID=1 HYD NO=110.2 AREA=0.001047 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* BASIN 3
*
COMPUTE NM HYD       ID=1 HYD NO=110.3 AREA=0.002903 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
*
FINISH
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AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =09/13/1996

INPUT FILE = a:p.dat USER NO.= R_BOHANN.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	100.10	-	1	.01364	25.48	.783	1.07600	1.500	2.919	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.10	-	1	.01364	12.44	.325	.44688	1.500	1.424	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	101.10	-	1	.00972	31.16	1.288	2.48487	1.500	5.011	PER IMP=	90.00
COMPUTE NM HYD	101.10	-	1	.00105	3.38	.139	2.48487	1.500	5.038	PER IMP=	90.00
COMPUTE NM HYD	101.10	-	1	.00290	9.32	.385	2.48487	1.500	5.019	PER IMP=	90.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.10	-	1	.00972	20.41	.807	1.55658	1.500	3.282	PER IMP=	90.00
COMPUTE NM HYD	110.20	-	1	.00105	2.21	.087	1.55658	1.500	3.297	PER IMP=	90.00
COMPUTE NM HYD	110.30	-	1	.00290	6.11	.241	1.55658	1.500	3.286	PER IMP=	90.00
FINISH											

AHYMO
Input and Output
for
Ponding

```
**********************************************************************
*                     ROCKY MOUNTAIN RV PARK                         *
**********************************************************************
*          100-YEAR, 24-HR STORM  (PONDING CALCULATIONS)             *
**********************************************************************
START                TIME=0.0
*
*
* BASIN 1
*
RAINFALL             TYPE=2 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.009716 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
* BASIN 1 PONDING
*
ROUTE RESERVOIR      ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)  ELEVATION(FT)
                       0.0000             0.0000          64.00
                       5.9794             0.0009          67.00
                       6.2139             0.0091          67.20
                       6.4400             0.0335          67.40
                       6.6583             0.0740          67.60
                       6.8698             0.1308          67.80
                       7.0749             0.2038          68.00
                       7.2742             0.2930          68.20
                       7.4682             0.3984          68.40
                       7.6573             0.5200          68.60
                       7.8418             0.6578          68.80
                       8.0221             0.8118          69.00
*
* BASIN 2
*
COMPUTE NM HYD       ID=3 HYD NO=100.2 AREA=0.002903 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* ADD POND 1 AND BASIN 2
*
ADD HYD              ID=1 HYD NO=101.2 ID=2 ID=3
*
* BASIN 2 PONDING
*
ROUTE RESERVOIR      ID=2 HYD NO=501.2 INFLOW ID=1 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)  ELEVATION(FT)
                       0.0000             0.0000          60.50
                       4.4257             0.0005          63.50
                       4.5945             0.0207          63.70
                       4.7573             0.0812          63.90
                       4.8367             0.1266          64.00
                       4.9916             0.2290          64.20
                       5.1418             0.3342          64.40
                       5.2878             0.4423          64.60
                       5.4299             0.5533          64.80
                       5.5683             0.6672          65.00
*
*
*
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =09/13/1996

INPUT FILE = a:pond2.dat USER NO.= R_BOHANN.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	3.650
COMPUTE NM HYD	100.10	-	1	.00972	31.16	1.576	3.04092	1.500	5.011	PER IMP=	90.00
ROUTE RESERVOIR	501.10	1	2	.00972	7.65	1.578	3.04599	2.000	1.230	AC-FT=	.513
COMPUTE NM HYD	100.20	-	3	.00290	9.32	.471	3.04095	1.500	5.019	PER IMP=	90.00
ADD HYD	101.20	2& 3	1	.01262	16.40	2.049	3.04483	1.500	2.030		
ROUTE RESERVOIR	501.20	1	2	.01262	5.53	2.049	3.04479	3.133	.685	AC-FT=	.635
FINISH											

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 09/13/1996
         START TIME (HR:MIN:SEC) = 10:38:46     USER NO.= R_BOHANN.I01
         INPUT FILE = a:pond2.dat

**********************************************************************
*                     ROCKY MOUNTAIN RV PARK                         *
**********************************************************************
*          100-YEAR, 24-HR STORM  (PONDING CALCULATIONS)             *
**********************************************************************
START               TIME=0.0
*
*
* BASIN 1
*
RAINFALL            TYPE=2 RAIN QUARTER=0.0 IN
                    RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                    RAIN DAY=3.65 IN DT=0.03333 HR

 COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
 DT =    .033330 HOURS       END TIME =    19.964670 HOURS
    .0000   .0055   .0110   .0167   .0225   .0284   .0345
    .0406   .0469   .0534   .0600   .0668   .0738   .0809
    .0882   .0958   .1035   .1115   .1197   .1282   .1370
    .1461   .1555   .1653   .1754   .1860   .1971   .2086
    .2207   .2334   .2469   .2530   .2596   .2667   .2818
    .3156   .3677   .4425   .5446   .6787   .8498  1.0629
   1.3228  1.5642  1.6650  1.7500  1.8257  1.8946  1.9579
   2.0168  2.0718  2.1233  2.1719  2.2176  2.2608  2.3018
   2.3405  2.3773  2.4122  2.4453  2.4767  2.4850  2.4927
   2.5002  2.5074  2.5143  2.5210  2.5275  2.5338  2.5400
   2.5459  2.5518  2.5575  2.5630  2.5685  2.5738  2.5790
   2.5841  2.5891  2.5940  2.5988  2.6036  2.6082  2.6128
   2.6173  2.6218  2.6262  2.6305  2.6347  2.6389  2.6431
   2.6471  2.6512  2.6552  2.6591  2.6630  2.6668  2.6706
   2.6743  2.6780  2.6817  2.6853  2.6889  2.6925  2.6960
   2.6995  2.7029  2.7063  2.7097  2.7131  2.7164  2.7197
   2.7229  2.7262  2.7294  2.7325  2.7357  2.7388  2.7419
   2.7450  2.7480  2.7511  2.7541  2.7570  2.7600  2.7629
   2.7658  2.7687  2.7716  2.7745  2.7773  2.7801  2.7829
   2.7857  2.7885  2.7912  2.7939  2.7966  2.7993  2.8020
   2.8046  2.8073  2.8099  2.8125  2.8151  2.8177  2.8202
   2.8228  2.8253  2.8279  2.8304  2.8329  2.8353  2.8378
   2.8402  2.8427  2.8451  2.8475  2.8499  2.8523  2.8547
   2.8571  2.8594  2.8618  2.8641  2.8664  2.8687  2.8710
   2.8733  2.8756  2.8779  2.8801  2.8824  2.8846  2.8868
   2.8890  2.8912  2.8934  2.8956  2.8978  2.9000  2.9021
   2.9042  2.9063  2.9083  2.9104  2.9125  2.9146  2.9166
   2.9187  2.9208  2.9228  2.9249  2.9269  2.9290  2.9310
   2.9330  2.9351  2.9371  2.9391  2.9411  2.9431  2.9451
   2.9471  2.9491  2.9511  2.9531  2.9551  2.9571  2.9591
   2.9610  2.9630  2.9650  2.9669  2.9689  2.9708  2.9728
   2.9747  2.9766  2.9786  2.9805  2.9824  2.9844  2.9863
   2.9882  2.9901  2.9920  2.9939  2.9958  2.9977  2.9996
   3.0015  3.0034  3.0052  3.0071  3.0090  3.0109  3.0127
   3.0146  3.0164  3.0183  3.0201  3.0220  3.0238  3.0257
   3.0275  3.0293  3.0312  3.0330  3.0348  3.0366  3.0384
   3.0402  3.0420  3.0439  3.0457  3.0474  3.0492  3.0510
   3.0528  3.0546  3.0564  3.0582  3.0599  3.0617  3.0635
```

3.0652	3.0670	3.0687	3.0705	3.0722	3.0740	3.0757
3.0775	3.0792	3.0809	3.0827	3.0844	3.0861	3.0878
3.0896	3.0913	3.0930	3.0947	3.0964	3.0981	3.0998
3.1015	3.1032	3.1049	3.1066	3.1082	3.1099	3.1116
3.1133	3.1149	3.1166	3.1183	3.1199	3.1216	3.1233
3.1249	3.1266	3.1282	3.1299	3.1315	3.1331	3.1348
3.1364	3.1381	3.1397	3.1413	3.1429	3.1446	3.1462
3.1478	3.1494	3.1510	3.1526	3.1542	3.1558	3.1574
3.1590	3.1606	3.1622	3.1638	3.1654	3.1670	3.1685
3.1701	3.1717	3.1733	3.1748	3.1764	3.1780	3.1795
3.1811	3.1827	3.1842	3.1858	3.1873	3.1889	3.1904
3.1919	3.1935	3.1950	3.1966	3.1981	3.1996	3.2012
3.2027	3.2042	3.2057	3.2072	3.2088	3.2103	3.2118
3.2133	3.2148	3.2163	3.2178	3.2193	3.2208	3.2223
3.2238	3.2253	3.2268	3.2283	3.2297	3.2312	3.2327
3.2342	3.2357	3.2371	3.2386	3.2401	3.2415	3.2430
3.2445	3.2459	3.2474	3.2488	3.2503	3.2517	3.2532
3.2546	3.2561	3.2575	3.2590	3.2604	3.2618	3.2633
3.2647	3.2661	3.2676	3.2690	3.2704	3.2718	3.2732
3.2747	3.2761	3.2775	3.2789	3.2803	3.2817	3.2831
3.2845	3.2859	3.2873	3.2887	3.2901	3.2915	3.2929
3.2943	3.2957	3.2971	3.2984	3.2998	3.3012	3.3026
3.3040	3.3053	3.3067	3.3081	3.3094	3.3108	3.3122
3.3135	3.3149	3.3163	3.3176	3.3190	3.3203	3.3217
3.3230	3.3244	3.3257	3.3271	3.3284	3.3297	3.3311
3.3324	3.3338	3.3351	3.3364	3.3378	3.3391	3.3404
3.3417	3.3431	3.3444	3.3457	3.3470	3.3483	3.3496
3.3510	3.3523	3.3536	3.3549	3.3562	3.3575	3.3588
3.3601	3.3614	3.3627	3.3640	3.3653	3.3666	3.3679
3.3691	3.3704	3.3717	3.3730	3.3743	3.3756	3.3768
3.3781	3.3794	3.3807	3.3819	3.3832	3.3845	3.3857
3.3870	3.3883	3.3895	3.3908	3.3921	3.3933	3.3946
3.3958	3.3971	3.3983	3.3996	3.4008	3.4021	3.4033
3.4046	3.4058	3.4070	3.4083	3.4095	3.4108	3.4120
3.4132	3.4145	3.4157	3.4169	3.4181	3.4194	3.4206
3.4218	3.4230	3.4243	3.4255	3.4267	3.4279	3.4291
3.4303	3.4315	3.4328	3.4340	3.4352	3.4364	3.4376
3.4388	3.4400	3.4412	3.4424	3.4436	3.4448	3.4460
3.4472	3.4484	3.4495	3.4507	3.4519	3.4531	3.4543
3.4555	3.4567	3.4578	3.4590	3.4602	3.4614	3.4625
3.4637	3.4649	3.4661	3.4672	3.4684	3.4696	3.4707
3.4719	3.4731	3.4742	3.4754	3.4765	3.4777	3.4788
3.4800	3.4812	3.4823	3.4835	3.4846	3.4858	3.4869
3.4880	3.4892	3.4903	3.4915	3.4926	3.4938	3.4949
3.4960	3.4972	3.4983	3.4994	3.5006	3.5017	3.5028
3.5040	3.5051	3.5062	3.5073	3.5085	3.5096	3.5107
3.5118	3.5129	3.5141	3.5152	3.5163	3.5174	3.5185
3.5196	3.5207	3.5218	3.5229	3.5241		

COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.009716 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 34.523 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 2.2300
AREA = .008744 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .134742HR TP = .133300HR K/TP RATIO = 1.010815 SHAPE CONSTANT, N = 3.492236

```
    UNIT PEAK =   2.3307    CFS   UNIT VOLUME =    .9945       B =   319.76      P60 = 2.2300
    AREA =       .000972 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

* BASIN 1 PONDING
*
ROUTE RESERVOIR     ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                    OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                        0.0000            0.0000          64.00
                        5.9794            0.0009          67.00
                        6.2139            0.0091          67.20
                        6.4400            0.0335          67.40
                        6.6583            0.0740          67.60
                        6.8698            0.1308          67.80
                        7.0749            0.2038          68.00
                        7.2742            0.2930          68.20
                        7.4682            0.3984          68.40
                        7.6573            0.5200          68.60
                        7.8418            0.6578          68.80
                        8.0221            0.8118          69.00

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

  TIME       INFLOW     ELEV       VOLUME     OUTFLOW
  (HRS)      (CFS)      (FEET)     (AC-FT)    (CFS)

    .00         .00     64.00         .000        .00
    .80        1.10     64.55         .000       1.09
   1.60       21.51     68.34         .368       7.41
   2.40        1.52     68.37         .385       7.44
   3.20         .49     64.00         .000        .00
   4.00         .38     64.19         .000        .37
   4.80         .35     64.18         .000        .35
   5.60         .35     64.18         .000        .35
   6.40         .35     64.18         .000        .35
   7.20         .33     64.17         .000        .33
   8.00         .32     64.16         .000        .32
   8.80         .30     64.15         .000        .30
   9.60         .29     64.14         .000        .29
  10.40         .28     64.14         .000        .28
  11.20         .27     64.13         .000        .27
  12.00         .26     64.13         .000        .26
  12.80         .25     64.12         .000        .25
  13.60         .24     64.12         .000        .24
  14.40         .23     64.12         .000        .23
  15.20         .22     64.11         .000        .22
  16.00         .22     64.11         .000        .22
  16.80         .21     64.11         .000        .21
  17.60         .20     64.10         .000        .20
  18.40         .20     64.10         .000        .20
  19.20         .19     64.10         .000        .19
 PEAK DISCHARGE =         7.646 CFS - PEAK OCCURS AT HOUR    2.00
 MAXIMUM WATER SURFACE ELEVATION =       68.589
 MAXIMUM STORAGE =          .5130 AC-FT      INCREMENTAL TIME=     .033330HRS

*
* BASIN 2
*
COMPUTE NM HYD      ID=3 HYD NO=100.2 AREA=0.002903 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
```

```
                    TP=-0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   10.315    CFS   UNIT VOLUME =    .9982       B =   526.28      P60 = 2.2300
    AREA =      .002613 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .134742HR    TP =   .133300HR    K/TP RATIO = 1.010815     SHAPE CONSTANT, N =  3.492236
    UNIT PEAK =   .69638    CFS   UNIT VOLUME =    .9804       B =   319.76      P60 = 2.2300
    AREA =      .000290 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

*
* ADD POND 1 AND BASIN 2
*
ADD HYD             ID=1 HYD NO=101.2 ID=2 ID=3
*
* BASIN 2 PONDING
*
ROUTE RESERVOIR     ID=2 HYD NO=501.2 INFLOW ID=1 CODE=24
                    OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                         0.0000             0.0000         60.50
                         4.4257             0.0005         63.50
                         4.5945             0.0207         63.70
                         4.7573             0.0812         63.90
                         4.8367             0.1266         64.00
                         4.9916             0.2290         64.20
                         5.1418             0.3342         64.40
                         5.2878             0.4423         64.60
                         5.4299             0.5533         64.80
                         5.5683             0.6672         65.00

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

    TIME        INFLOW    ELEV      VOLUME    OUTFLOW
    (HRS)       (CFS)     (FEET)    (AC-FT)   (CFS)

      .00         .00     60.50        .000       .00
      .80        1.42     61.46        .000      1.42
     1.60       13.85     64.18        .218      4.97
     2.40        7.90     64.75        .528      5.40
     3.20         .14     64.92        .623      5.51
     4.00         .49     64.35        .308      5.10
     4.80         .46     63.66        .017      4.56
     5.60         .46     60.81        .000       .46
     6.40         .46     60.81        .000       .46
     7.20         .43     60.79        .000       .43
     8.00         .41     60.78        .000       .41
     8.80         .39     60.77        .000       .39
     9.60         .38     60.75        .000       .38
    10.40         .36     60.74        .000       .36
    11.20         .35     60.73        .000       .35
    12.00         .33     60.73        .000       .33
    12.80         .32     60.72        .000       .32
    13.60         .31     60.71        .000       .31
    14.40         .30     60.70        .000       .30
    15.20         .29     60.70        .000       .29
    16.00         .28     60.69        .000       .28
    16.80         .27     60.69        .000       .27
```

```
    17.60        .26     60.68        .000        .26
    18.40        .26     60.67        .000        .26
    19.20        .25     60.67        .000        .25
 PEAK DISCHARGE =         5.529 CFS - PEAK OCCURS AT HOUR    3.13
 MAXIMUM WATER SURFACE ELEVATION =       64.944
 MAXIMUM STORAGE =          .6352 AC-FT      INCREMENTAL TIME=     .033330HRS

*
*
*
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 10:38:47
```

Tierra West Development
Management Services

DRAINAGE REPORT
For

ROCKY MOUNTAIN R.V. & MARINE SALES AND SERVICE

Prepared for :

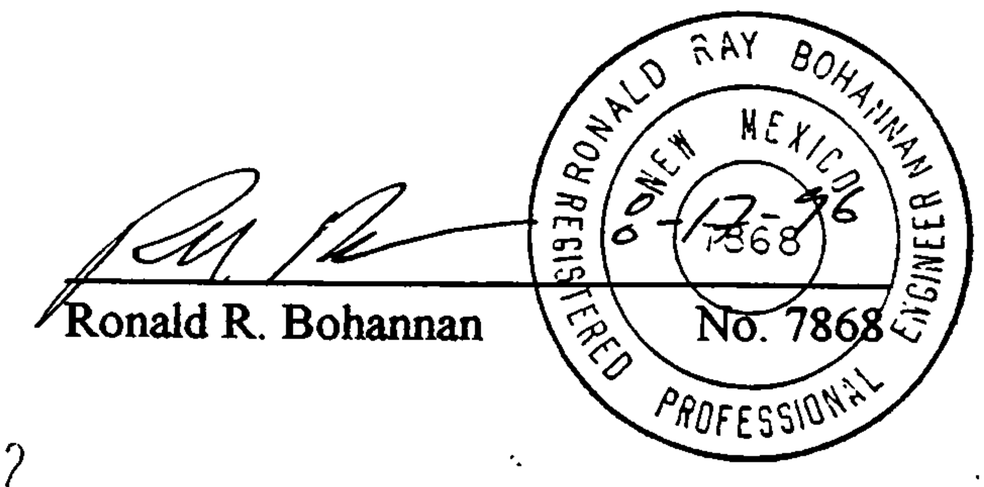
Rocky Mountain R.V.
11109 Central Avenue, N.E.
Albuquerque, New Mexico 87123

Prepared by:

Tierra West Development Management Services
4421 McLeod RD. N.E., Suite D
Albuquerque, New Mexico
(505) 883-7592

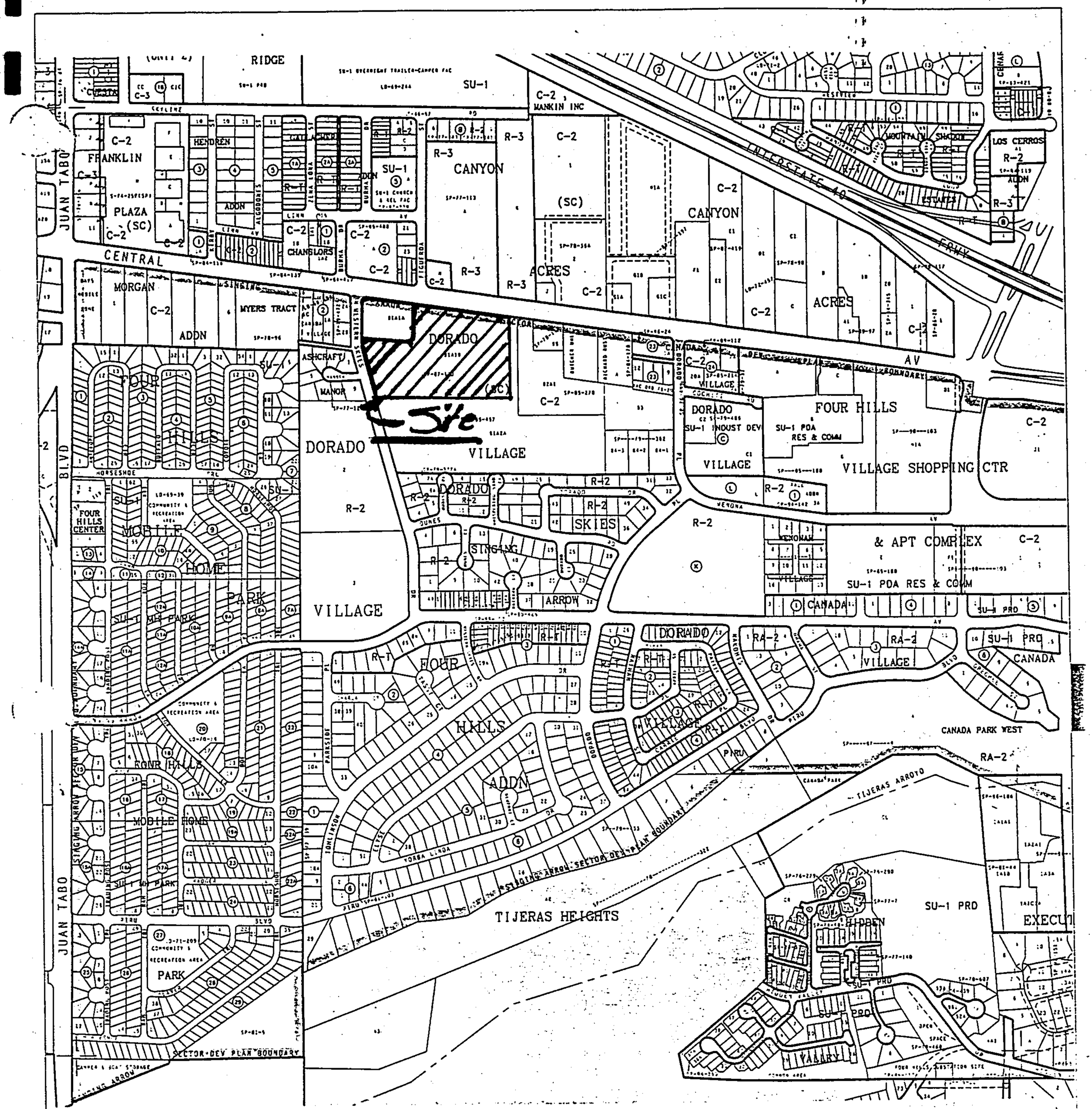
January, 1996
Revised August 1996

I certify that this report was prepared under my supervision, and I am a registered Professional Engineer in good standing with the State of New Mexico.



Ronald R. Bohannan No. 7868

TABLE OF CONTENTS


RIDGE
SU-1
C-2
MANKIN INC
FRANKLIN
PLAZA
(SC)
HENDREN
ADDN
CANYON
R-3
R-2
R-1
SU-1
CHURCH
CHANSLORS
ACRES
MORGAN
MYERS TRACT
ADDN
DORADO
Site
VILLAGE
FOUR HILLS
SKIES
SINGING
ARROW
MOBILE HOME PARK
MANOR
ASHCRAFT
VILLAGE SHOPPING CTR
& APT COMPLEX
SU-1 PDA RES & COMM
SU-1 PRD
CANADA
CANADA PARK WEST
TIJERAS HEIGHTS
TIJERAS ARROYO
SECTOR DEV PLAN BOUNDARY
JUAN TABO
BLVD
CENTRAL
INTERSTATE 40
LOS CERROS
MOUNTAIN SHADOW
ESTATES
HIDDEN
EXECUT
North
750
375
0
750
Scale: 1" = 750'
Albuquerque Geographic Information System
City of Albuquerque
LEGAL DESCRIPTION
T10N
R4E
SEC 27
UNIFORM PROPERTY CODE
1-022-056
L-22-Z

LOCATION

The site is located at the southwest corner of a 42' private drive, Whispering Pines and Central Avenue. The site lies just east of Western Skies on the South side of Central Avenue. The street address is 12700 Central Avenue and comprises Lot B1A1B, Dorado Village, containing approximately 8.7303 acres. The intent of this report is to present the drainage management plan for Building Permit Purpose and Site Development Plan approval. All applicable ordinances and the Development Process Manual were utilized for this analysis.

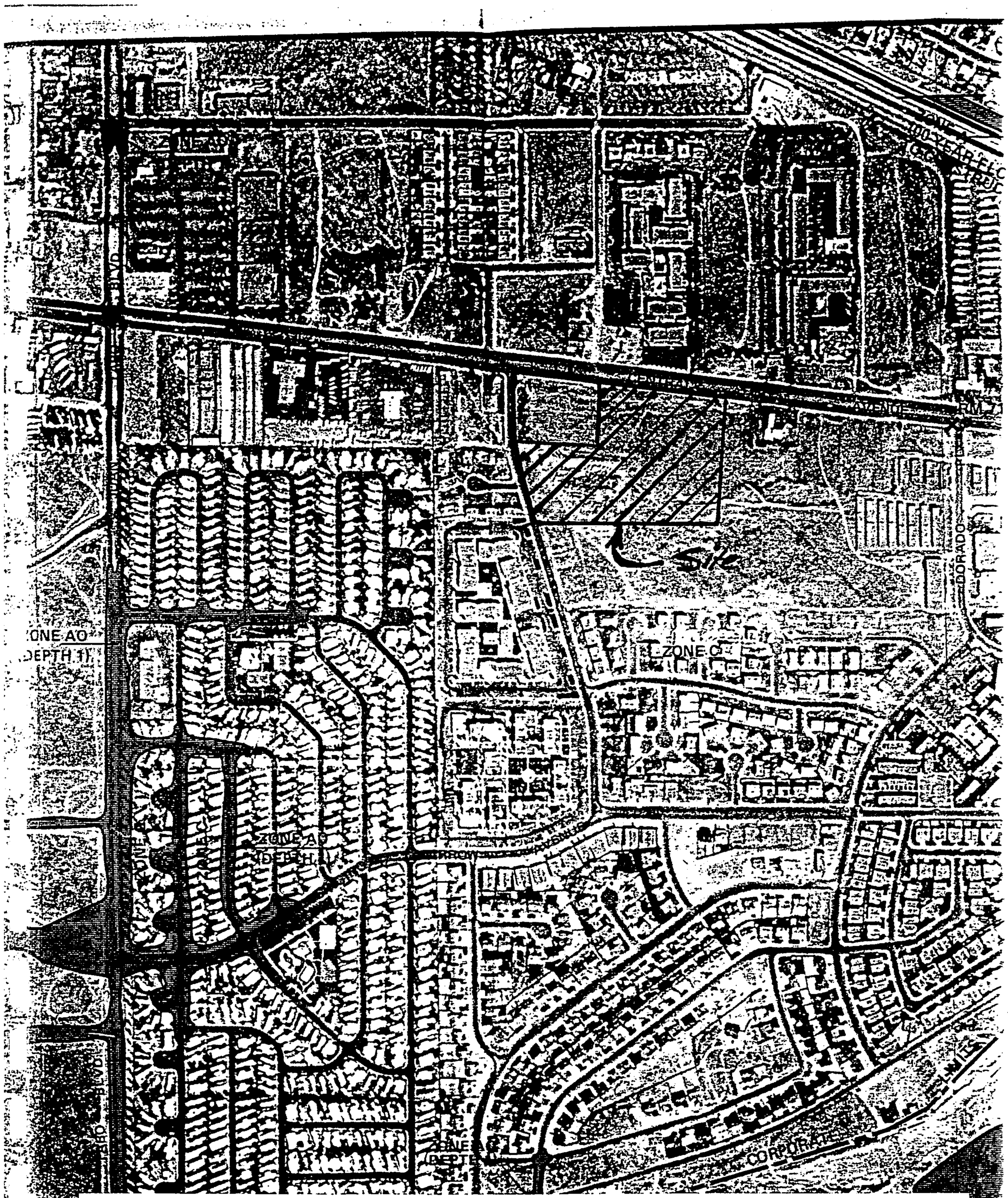
DESIGN METHOD

The method used will be and is designated in Part A for smaller water sheds under 40 acres, as described in the Design Procedures Manual. The runoff was calculated based on 100-year, 6 hour storm. The site lies within Zone 3, but to be more conservative, we have used the Zone 4 rain fall data in our runoff calculations due to proximity of zone line.

EXISTING CONDITIONS

The site lies on the south side and adjacent to Central Avenue and lies immediately east of Western Skies. A private access road (Whispering Pines) leads into a developed apartment complex on the east. Whispering Pines on the upstream development redirects and protects the site from any off-site flow from entering the site. Currently, flows on site sheet flows west to Western Skies and off-site.

The site is partially developed with the site having approximately six inches (6") of base course over the entire site. Some landscaping, while sparse, is present along the south and eastern edge of the site. The existing flow rate is 25.48 cfs. According to FEMA MAP 350002-0037C the site does not fall within the flood zone. See attached FEMA MAP.



FEMA MAP 350002-0037C

PROPOSED MANAGEMENT PLAN

The City of Albuquerque has prepared storm drainage improvements in Central Avenue and Western Skies to handle localized flooding. This revised drainage plan proposes to discharge the runoff from the site into the new 24" storm drain system in Western Skies which connects to a 30" storm drain system in Central Avenue.

The site is divided into two proposed drainage basins. Basin 1 contains the eastern two-thirds of the site. This basin has a developed runoff flow of 31.16 cfs. It will drain into a parking lot pond (Pond 1) located on the west side of the basin. Two single 'D' catch basins will drain Pond 1 at a rate of 7.65 cfs through an 12" PVC pipe. The runoff will be routed to Pond 2 located on the west side of Basin 2. Basin 2 has a developed runoff rate of 12.59 cfs and contains the western third of the site. The flow from Basin 2 will drain to Pond 2 located on the west side of the site A 24" RCP pipe will route the flow to the existing 24" storm drain system in Western Skies. The pond will drain at a rate of 19.63 cfs which is less than the historical flow of 25.48 cfs. In case of events larger than a 100 year storm, Pond 1 will have an 30 foot wide emergency spillway and Pond 2 will have 12 foot wide emergency spillway

SUMMARY

There are two proposed basins on the site. Basin 1 has a runoff flow rate of 31.16 cfs and Basin 2 has a runoff flow rate of 12.59 cfs. Two detention ponds will limit the flow rate to the existing storm drain line in Western Skies to 19.63 cfs.

Runoff Calculations

SAMPLE CALCULATIONS FOR ROCKY MOUNTAIN RV

The site is @ Zone 4

LAND TREATMENT

Treatment D:

D = 90 %

Treatment B:

B = 10 %

DEPTH (INCHES) @ 100-YEAR, 6-HR STORM

P_{60} = 2.23 inches

P_{360} = 2.90 inches

P_{1440} = 3.65 inches

DEPTH (INCHES) @ 10-YEAR, 6-HR STORM

P_{60} = 2.23 x 0.667
= 1.49 inches

P_{360} = 1.93

P_{1440} = 2.43

Runoff
Summary Tables
for
Proposed and Existing
Drainage Basins

DRAINAGE BASINS

Existing

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	380291.87	8.7303	0.013641

Proposed

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	270872.96	6.2184	0.009716
2	109339.02	2.5101	0.003922

RUNOFF CALCULATION RESULTS

Existing

BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	25.48	12.44	0.783	0.325

Proposed

SUB-BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	31.16	20.41	1.288	0.807
2	12.59	8.24	0.520	0.326

Storm Sewer

DROP INLET CALCULATIONS

ORIFICE EQUATION

Q = CA sqrt(2gH)

C = 0.6

g = 32.2

POND	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
1	2 Single 'D'	4.60	31.16	1.9792	2
2	Single 'D'	2.30	12.59	1.2924	1.5

STORM DRAIN INLET

EFFECTIVE AREA ASSUMING A 50% CLOGGING FACTOR

SINGLE 'D':

Area at the grate:

L = 38.375" - 7 (1/2" $_{\text{middle bars}}$)
= 34.875"
= 2.906'

W = 25.5" - 13 (1/2" $_{\text{middle bars}}$)
= 19"
= 1.583'

Area = 1.583 x 2.906
= 4.601 ft^2

Effective Area = 4.601- .5 (4.601) $_{\text{Clogging Factor}}$
= 2.30 ft^2 at the grate

DOUBLE 'D':

Area at the grate:

L = 76.75" - 14 (1/2" $_{\text{middle bars}}$) - 6" $_{\text{center piece}}$
= 63.75"
= 5.3125'

W = 25.5" - 13 (1/2 $_{\text{middle bars}}$)
= 19"
= 1.583'

Area = 1.583' x 5.3125'
= 8.410 ft^2

Effective Area = 8.410 - .5 (8.410)
= 4.21 ft^2

PIPE VELOCITY
(Pipes flowing full)

12" Pipe Connecting Pond 1 and Pond 2:

V = Q/A

$$V = \frac{7.65}{\left(1^2 * \frac{\pi}{4}\right)}$$

V = 9.74 cfs

21" Outfall Pipe from Pond 2:

V = Q/A

$$V = \frac{19.63}{\left(2^2 * \frac{\pi}{4}\right)}$$

V = 6.25 cfs

Ponding Calculations

VOLUME CALCULATIONS

POND 1

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = $Ab * D + 0.5 * C * D^2$

C = (At - Ab) / Dt

Ab =	13.59	(@ elevation 5567.00)
At =	35,309.72	(@ elevation 5569.00)
Dt =	2.00	
C =	17648.07	

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
64	0	0	0.0000
67.00	3	0.0009	5.9794
67.20	3.2	0.0091	6.2139
67.40	3.4	0.0335	6.4400
67.60	3.6	0.0740	6.6583
67.80	3.8	0.1308	6.8698
68.00	4	0.2038	7.0749
68.20	4.2	0.2930	7.2742
68.40	4.4	0.3984	7.4682
68.60	4.6	0.5200	7.6573
68.80	4.8	0.6578	7.8418
69.00	5	0.8118	8.0221

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6	
Diameter (in	12	
Area (ft^2)=	0.785398	
g =	32.2	
H (ft) =	Depth of water above center of orifice	
Q (cfs)=	Flow	

VOLUME CALCULATIONS

POND 2

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2

C = (At - Ab) / Dt

Ab =	13.59	(@ elevation 5559.50)
At =	1,764.00	(@ elevation 5560.00)
Dt =	0.50	
C =	3500.82	

Ab =	1,764.00	(@ elevation 5560.00)
At =	2,500.00	(@ elevation 5561.00)
Dt =	1.00	
C =	736.00	

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
55.2	0	0	0.0000
59.50	4.3	0.0013	27.4790
59.70	4.5	0.0030	28.2995
59.90	4.7	0.0079	29.0968
60.00	4.8	0.0115	29.4874
60.10	4.9	0.0157	29.8728
60.30	5.1	0.0245	30.6292
60.50	5.3	0.0339	31.3674
60.70	5.5	0.0440	32.0886
60.90	5.7	0.0548	32.7939
61.00	5.8	0.0605	33.1409

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6	
Diameter (in	24	
Area (ft^2)=	3.141593	
g =	32.2	
H (Ft) =	Depth of water above center of orifice	
Q (CFS)=	Flow	

EMERGENCY SPILLWAY

Pond 2

Weir Equation:

$$Q=CLH^{3/2}$$

Q= 12.59 cfs
C = 2.95
H = 0.5 ft
L = Length of weir

$$L=\frac{12.59}{2.95(0.5)^{3/2}}$$

L = 12.07 ft
Use 12.00 feet for length of weir

Pond 1

Weir Equation:

$$Q=CLH^{3/2}$$

Q= 31.16 cfs
C = 2.95
H = 0.5 ft
L = Length of weir

$$L=\frac{31.16}{2.95(0.5)^{3/2}}$$

L = 29.87 ft
Use 30.00 feet for length of weir

AHYMO
Runoff Input
and
Summary Output
for
Proposed and Existing
Drainage Basins

```
**********************************************************************
*                        ROCKY MOUNTAIN RV                           *
**********************************************************************
*                          6-HR STORM                                *
**********************************************************************
*              EXISTING CONDITIONS 100-YEAR STORM                    *
**********************************************************************
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
**********************************************************************
*               EXISTING CONDITIONS 10-YEAR STORM                    *
**********************************************************************
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                     RAIN DAY=2.43 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=110.1 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
*
**********************************************************************
*           PROPOSED/FUTURE CONDITIONS 100-YEAR STORM                *
**********************************************************************
*
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.009716 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* BASIN 2
*
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.003922 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
**********************************************************************
*            PROPOSED/FUTURE CONDITIONS 10-YEAR STORM                *
**********************************************************************
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
```

```
                    RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                    RAIN DAY=2.43 IN DT=0.03333 HR
COMPUTE NM HYD      ID=1 HYD NO=110.1 AREA=0.009716 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
*
* BASIN 2
*
COMPUTE NM HYD      ID=1 HYD NO=110.2 AREA=0.003922 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
*
*
FINISH
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =08/14/1996

INPUT FILE = a:p.dat USER NO.= R_BOHANN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	100.10	-	1	.01364	25.48	.783	1.07600	1.500	2.919	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.10	-	1	.01364	12.44	.325	.44688	1.500	1.424	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	101.10	-	1	.00972	31.16	1.288	2.48487	1.500	5.011	PER IMP=	90.00
COMPUTE NM HYD	101.10	-	1	.00392	12.59	.520	2.48487	1.500	5.016	PER IMP=	90.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.10	-	1	.00972	20.41	.807	1.55658	1.500	3.282	PER IMP=	90.00
COMPUTE NM HYD	110.20	-	1	.00392	8.24	.326	1.55658	1.500	3.285	PER IMP=	90.00
FINISH											

AHYMO
Input and Output
for
Ponding

```
  **********************************************************************
                     ROCKY MOUNTAIN RV PARK                          *
**********************************************************************
          100-YEAR, 24-HR STORM  (PONDING CALCULATIONS)               *
  **********************************************************************
START                TIME=0.0


  BASIN 1
*
  INFALL             TYPE=2 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
  4PUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.009716 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
* BASIN 1 PONDING

  UTE RESERVOIR      ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                   OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                       0.0000            0.0000          64.00
                       5.9794            0.0009          67.00
                       6.2139            0.0091          67.20
                       6.4400            0.0335          67.40
                       6.6583            0.0740          67.60
                       6.8698            0.1308          67.80
                       7.0749            0.2038          68.00
                       7.2742            0.2930          68.20
                       7.4682            0.3984          68.40
                       7.6573            0.5200          68.60
                       7.8418            0.6578          68.80
                       8.0221            0.8118          69.00
*
* 3ASIN 2

  4PUTE NM HYD       ID=3 HYD NO=100.2 AREA=0.003922 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1

* ADD POND 1 AND BASIN 2

  ) HYD              ID=1 HYD NO=101.2 ID=2 ID=3

* BASIN 2 PONDING

  JTE RESERVOIR      ID=2 HYD NO=501.2 INFLOW ID=1 CODE=24
                     OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                       00.0000           0.0000          55.20
                       27.4790           0.0013          59.50
                       28.2995           0.0030          59.70
                       29.0968           0.0079          59.90
                       29.4874           0.0115          60.00
                       29.8728           0.0157          60.10
                       30.6292           0.0245          60.30
                       31.3674           0.0339          60.50
                       32.0886           0.0440          60.70
                       32.7939           0.0548          60.90
                       33.1409           0.0605          61.00

*
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =08/16/1996

INPUT FILE = a:pond2.dat USER NO.= R_BOHANN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	3.650
COMPUTE NM HYD	100.10	-	1	.00972	31.16	1.576	3.04092	1.500	5.011	PER IMP=	90.00
ROUTE RESERVOIR	501.10	1	2	.00972	7.65	1.578	3.04599	2.000	1.230	AC-FT=	.513
COMPUTE NM HYD	100.20	-	3	.00392	12.59	.636	3.04094	1.500	5.016	PER IMP=	90.00
ADD HYD	101.20	2& 3	1	.01364	19.66	2.214	3.04454	1.500	2.253		
ROUTE RESERVOIR	501.20	1	2	.01364	19.64	2.214	3.04452	1.500	2.250	AC-FT=	.001
FINISH											

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 08/16/1996
         START TIME (HR:MIN:SEC) = 08:15:17     USER NO.= R_BOHANN.101
         INPUT FILE = a:pond2.dat

**************************************************************************
*                      ROCKY MOUNTAIN RV PARK                            *
**************************************************************************
*          100-YEAR, 24-HR STORM  (PONDING CALCULATIONS)                 *
**************************************************************************
START                TIME=0.0
*
*
* BASIN 1
*
RAINFALL             TYPE=2 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
```

```
COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT =    .033330 HOURS       END TIME =    19.964670 HOURS
   .0000   .0055   .0110   .0167   .0225   .0284   .0345
   .0406   .0469   .0534   .0600   .0668   .0738   .0809
   .0882   .0958   .1035   .1115   .1197   .1282   .1370
   .1461   .1555   .1653   .1754   .1860   .1971   .2086
   .2207   .2334   .2469   .2530   .2596   .2667   .2818
   .3156   .3677   .4425   .5446   .6787   .8498  1.0629
  1.3228  1.5642  1.6650  1.7500  1.8257  1.8946  1.9579
  2.0168  2.0718  2.1233  2.1719  2.2176  2.2608  2.3018
  2.3405  2.3773  2.4122  2.4453  2.4767  2.4850  2.4927
  2.5002  2.5074  2.5143  2.5210  2.5275  2.5338  2.5400
  2.5459  2.5518  2.5575  2.5630  2.5685  2.5738  2.5790
  2.5841  2.5891  2.5940  2.5988  2.6036  2.6082  2.6128
  2.6173  2.6218  2.6262  2.6305  2.6347  2.6389  2.6431
  2.6471  2.6512  2.6552  2.6591  2.6630  2.6668  2.6706
  2.6743  2.6780  2.6817  2.6853  2.6889  2.6925  2.6960
  2.6995  2.7029  2.7063  2.7097  2.7131  2.7164  2.7197
  2.7229  2.7262  2.7294  2.7325  2.7357  2.7388  2.7419
  2.7450  2.7480  2.7511  2.7541  2.7570  2.7600  2.7629
  2.7658  2.7687  2.7716  2.7745  2.7773  2.7801  2.7829
  2.7857  2.7885  2.7912  2.7939  2.7966  2.7993  2.8020
  2.8046  2.8073  2.8099  2.8125  2.8151  2.8177  2.8202
  2.8228  2.8253  2.8279  2.8304  2.8329  2.8353  2.8378
  2.8402  2.8427  2.8451  2.8475  2.8499  2.8523  2.8547
  2.8571  2.8594  2.8618  2.8641  2.8664  2.8687  2.8710
  2.8733  2.8756  2.8779  2.8801  2.8824  2.8846  2.8868
  2.8890  2.8912  2.8934  2.8956  2.8978  2.9000  2.9021
  2.9042  2.9063  2.9083  2.9104  2.9125  2.9146  2.9166
  2.9187  2.9208  2.9228  2.9249  2.9269  2.9290  2.9310
  2.9330  2.9351  2.9371  2.9391  2.9411  2.9431  2.9451
  2.9471  2.9491  2.9511  2.9531  2.9551  2.9571  2.9591
  2.9610  2.9630  2.9650  2.9669  2.9689  2.9708  2.9728
  2.9747  2.9766  2.9786  2.9805  2.9824  2.9844  2.9863
  2.9882  2.9901  2.9920  2.9939  2.9958  2.9977  2.9996
  3.0015  3.0034  3.0052  3.0071  3.0090  3.0109  3.0127
  3.0146  3.0164  3.0183  3.0201  3.0220  3.0238  3.0257
  3.0275  3.0293  3.0312  3.0330  3.0348  3.0366  3.0384
  3.0402  3.0420  3.0439  3.0457  3.0474  3.0492  3.0510
  3.0528  3.0546  3.0564  3.0582  3.0599  3.0617  3.0635
```

3.0652 3.0670 3.0687 3.0705 3.0722 3.0740 3.0757
3.0775 3.0792 3.0809 3.0827 3.0844 3.0861 3.0878
3.0896 3.0913 3.0930 3.0947 3.0964 3.0981 3.0998
3.1015 3.1032 3.1049 3.1066 3.1082 3.1099 3.1116
3.1133 3.1149 3.1166 3.1183 3.1199 3.1216 3.1233
3.1249 3.1266 3.1282 3.1299 3.1315 3.1331 3.1348
3.1364 3.1381 3.1397 3.1413 3.1429 3.1446 3.1462
3.1478 3.1494 3.1510 3.1526 3.1542 3.1558 3.1574
3.1590 3.1606 3.1622 3.1638 3.1654 3.1670 3.1685
3.1701 3.1717 3.1733 3.1748 3.1764 3.1780 3.1795
3.1811 3.1827 3.1842 3.1858 3.1873 3.1889 3.1904
3.1919 3.1935 3.1950 3.1966 3.1981 3.1996 3.2012
3.2027 3.2042 3.2057 3.2072 3.2088 3.2103 3.2118
3.2133 3.2148 3.2163 3.2178 3.2193 3.2208 3.2223
3.2238 3.2253 3.2268 3.2283 3.2297 3.2312 3.2327
3.2342 3.2357 3.2371 3.2386 3.2401 3.2415 3.2430
3.2445 3.2459 3.2474 3.2488 3.2503 3.2517 3.2532
3.2546 3.2561 3.2575 3.2590 3.2604 3.2618 3.2633
3.2647 3.2661 3.2676 3.2690 3.2704 3.2718 3.2732
3.2747 3.2761 3.2775 3.2789 3.2803 3.2817 3.2831
3.2845 3.2859 3.2873 3.2887 3.2901 3.2915 3.2929
3.2943 3.2957 3.2971 3.2984 3.2998 3.3012 3.3026
3.3040 3.3053 3.3067 3.3081 3.3094 3.3108 3.3122
3.3135 3.3149 3.3163 3.3176 3.3190 3.3203 3.3217
3.3230 3.3244 3.3257 3.3271 3.3284 3.3297 3.3311
3.3324 3.3338 3.3351 3.3364 3.3378 3.3391 3.3404
3.3417 3.3431 3.3444 3.3457 3.3470 3.3483 3.3496
3.3510 3.3523 3.3536 3.3549 3.3562 3.3575 3.3588
3.3601 3.3614 3.3627 3.3640 3.3653 3.3666 3.3679
3.3691 3.3704 3.3717 3.3730 3.3743 3.3756 3.3768
3.3781 3.3794 3.3807 3.3819 3.3832 3.3845 3.3857
3.3870 3.3883 3.3895 3.3908 3.3921 3.3933 3.3946
3.3958 3.3971 3.3983 3.3996 3.4008 3.4021 3.4033
3.4046 3.4058 3.4070 3.4083 3.4095 3.4108 3.4120
3.4132 3.4145 3.4157 3.4169 3.4181 3.4194 3.4206
3.4218 3.4230 3.4243 3.4255 3.4267 3.4279 3.4291
3.4303 3.4315 3.4328 3.4340 3.4352 3.4364 3.4376
3.4388 3.4400 3.4412 3.4424 3.4436 3.4448 3.4460
3.4472 3.4484 3.4495 3.4507 3.4519 3.4531 3.4543
3.4555 3.4567 3.4578 3.4590 3.4602 3.4614 3.4625
3.4637 3.4649 3.4661 3.4672 3.4684 3.4696 3.4707
3.4719 3.4731 3.4742 3.4754 3.4765 3.4777 3.4788
3.4800 3.4812 3.4823 3.4835 3.4846 3.4858 3.4869
3.4880 3.4892 3.4903 3.4915 3.4926 3.4938 3.4949
3.4960 3.4972 3.4983 3.4994 3.5006 3.5017 3.5028
3.5040 3.5051 3.5062 3.5073 3.5085 3.5096 3.5107
3.5118 3.5129 3.5141 3.5152 3.5163 3.5174 3.5185
3.5196 3.5207 3.5218 3.5229 3.5241

COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.009716 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 34.523 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 2.2300
AREA = .008744 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .134742HR TP = .133300HR K/TP RATIO = 1.010815 SHAPE CONSTANT, N = 3.492236

UNIT PEAK = 2.3307 CFS UNIT VOLUME = .9945 B = 319.76 P60 = 2.2300
AREA = .000972 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

* BASIN 1 PONDING
*
ROUTE RESERVOIR ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	64.00
5.9794	0.0009	67.00
6.2139	0.0091	67.20
6.4400	0.0335	67.40
6.6583	0.0740	67.60
6.8698	0.1308	67.80
7.0749	0.2038	68.00
7.2742	0.2930	68.20
7.4682	0.3984	68.40
7.6573	0.5200	68.60
7.8418	0.6578	68.80
8.0221	0.8118	69.00

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	64.00	.000	.00
.80	1.10	64.55	.000	1.09
1.60	21.51	68.34	.368	7.41
2.40	1.52	68.37	.385	7.44
3.20	.49	64.00	.000	.00
4.00	.38	64.19	.000	.37
4.80	.35	64.18	.000	.35
5.60	.35	64.18	.000	.35
6.40	.35	64.18	.000	.35
7.20	.33	64.17	.000	.33
8.00	.32	64.16	.000	.32
8.80	.30	64.15	.000	.30
9.60	.29	64.14	.000	.29
10.40	.28	64.14	.000	.28
11.20	.27	64.13	.000	.27
12.00	.26	64.13	.000	.26
12.80	.25	64.12	.000	.25
13.60	.24	64.12	.000	.24
14.40	.23	64.12	.000	.23
15.20	.22	64.11	.000	.22
16.00	.22	64.11	.000	.22
16.80	.21	64.11	.000	.21
17.60	.20	64.10	.000	.20
18.40	.20	64.10	.000	.20
19.20	.19	64.10	.000	.19

PEAK DISCHARGE = 7.646 CFS - PEAK OCCURS AT HOUR 2.00
MAXIMUM WATER SURFACE ELEVATION = 68.589
MAXIMUM STORAGE = .5130 AC-FT INCREMENTAL TIME= .033330HRS

*
* BASIN 2
*
COMPUTE NM HYD ID=3 HYD NO=100.2 AREA=0.003922 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00

TP=-0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.936 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 2.2300
AREA = .003530 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .134742HR TP = .133300HR K/TP RATIO = 1.010815 SHAPE CONSTANT, N = 3.492236
UNIT PEAK = .94082 CFS UNIT VOLUME = .9860 B = 319.76 P60 = 2.2300
AREA = .000392 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

*
* ADD POND 1 AND BASIN 2
*
ADD HYD ID=1 HYD NO=101.2 ID=2 ID=3
*
* BASIN 2 PONDING
*
ROUTE RESERVOIR ID=2 HYD NO=501.2 INFLOW ID=1 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
00.0000	0.0000	55.20
27.4790	0.0013	59.50
28.2995	0.0030	59.70
29.0968	0.0079	59.90
29.4874	0.0115	60.00
29.8728	0.0157	60.10
30.6292	0.0245	60.30
31.3674	0.0339	60.50
32.0886	0.0440	60.70
32.7939	0.0548	60.90
33.1409	0.0605	61.00

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	55.20	.000	.00
.80	1.53	55.44	.000	1.53
1.60	16.10	57.73	.001	16.14
2.40	8.06	56.46	.000	8.06
3.20	.20	55.23	.000	.22
4.00	.53	55.29	.000	.57
4.80	.49	55.28	.000	.50
5.60	.50	55.28	.000	.50
6.40	.49	55.28	.000	.49
7.20	.47	55.27	.000	.47
8.00	.44	55.27	.000	.44
8.80	.43	55.27	.000	.43
9.60	.41	55.26	.000	.41
10.40	.39	55.26	.000	.39
11.20	.37	55.26	.000	.37
12.00	.36	55.26	.000	.36
12.80	.35	55.25	.000	.35
13.60	.33	55.25	.000	.33
14.40	.32	55.25	.000	.32
15.20	.31	55.25	.000	.31
16.00	.30	55.25	.000	.30

```
    16.80        .30     55.25        .000        .30
    17.60        .29     55.24        .000        .29
    18.40        .28     55.24        .000        .28
    19.20        .27     55.24        .000        .27
 PEAK DISCHARGE =       19.637 CFS - PEAK OCCURS AT HOUR    1.50
 MAXIMUM WATER SURFACE ELEVATION =       58.273
 MAXIMUM STORAGE =          .0009 AC-FT      INCREMENTAL TIME=     .033330HRS

*
*
*
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:15:19
```

Tierra West Development
Management Services

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 2, 1996

Ronald Bohannan
Tierra West Development
4421 McCleod NE
Suite D
Albuquerque, NM 87109

RE: ROCKY MOUNTAIN R.V. (L22-D35) DRAINAGE REPORT AND GRADING PLAN SUBMITTAL FOR SITE DEVELOPMENT PLAN FOR SUBDIVISION APPROVAL, BUILDING PERMIT APPROVAL, AND GRADING PERMIT APPROVAL. ENGINEER'S STAMP DATED 1-22-96.

Dear Mr. Bohannan:

Based on the information provided on your January 29, 1996 submittal, the above referenced project is approved for Site Development Plan for Subdivision, Build Permit, and Grading Permit.

A SO #19 Permit is required for the construction of the sidewalk culvert. Please submit two copies of your approved Grading and Drainage Plan sheet for SO #19 Permit approval.

Prior to Certificate of Occupancy release an Engineer's Certification will be required.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: ROCKY MOUNTAIN R.V. ZONE ATLAS/DRNG. FILE #: L-22 / D35

DRB #: 94-509 EPC #: Z-94-92 WORK ORDER #:

LEGAL DESCRIPTION: TRACT B1A1B DORADO VILLAGE

CITY ADDRESS: 12700 CENTRAL AVENUE, N.E.

ENGINEERING FIRM: TIERRA WEST DEV. MAGT. SER. CONTACT: RONALD R. BOHANNAN

ADDRESS: 4421 McCLEOD NE SUITE #D, 87109 PHONE: (505) 883-7592

OWNER ROCKY MOUNTAIN R.V. CONTACT: JUDY ROBERTS

ADDRESS: 11109 CENTRAL, NW, 87123 PHONE: (505) 292-7800

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: PRECISION SURVEYING CONTACT: LARRY MADRANO

ADDRESS: 2929 COORS BLVD. NW SUITE 105, ALBUQ. NM 87120 PHONE: (505) 839-0569

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

_X_ NO

____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAN APPROVAL

____ PRELIMINARY PLAT APPROVAL

_X_ 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

____ OTHER _ EPC CONCEPTUAL PLAN

DATE SUBMITTED: 1/02/96

BY: RONALD R. BOHANNAN

RECEIVED
JAN 29 1996
HYDROLOGY DIV

Tierra West Development
Management Services

January 22, 1996

Ms. Lisa Ann Manwill
Engineering Associate - Hydrology
City of Albuquerque Public Works
Post Office Box 1293
Albuquerque, New Mexico 87103

RE: Rocky Mountain RV (I22 - D35) Resubmittal for Building Permit

Dear Ms. Manwill:

Enclosed please find the above-referenced property with your comments addressed. Specifically we have provided:

1) The finished floor elevation of 5576.00 for the building;

2) Spot Elevations along Central, Whispering Pines and Western Skies;

3) Roof drain directions;

4) Tract B-1-A-1-A is currently a service station that is fully developed. The site drains to the west and north to Central at Western Skies.

I hope this answers all of your questions concerning the project. However, if you have any additional questions, please do not hesitate to call me.

Sincerely,

Ronald R. Bohannan, P. E.

Enclosures

cc: Judy Roberts
Banes Southwest

JN: 940012
RRB/db

RECEIVED
JAN 29 1996
HYDROLOGY DIVISION

resubmit ltr

4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *ROCKY MOUNTAIN R.V.* ZONE ATLAS/DRNG. FILE #: *L-22 / 435*

DRB #: *94-509* EPC #: *Z-94-92* WORK ORDER #:

LEGAL DESCRIPTION: *TRACT B1A1B DORADO VILLAGE*

CITY ADDRESS: *12700 CENTRAL AVENUE, N.E.*

ENGINEERING FIRM: *TIERRA WEST DEV. MAGT. SER.* CONTACT: *RONALD R. BOHANNAN*

ADDRESS: *4421 McCLEOD NE SUITE #D, 87109* PHONE: *(505) 883-7592*

OWNER *ROCKY MOUNTAIN R.V.* CONTACT: *JUDY ROBERTS*

ADDRESS: *11109 CENTRAL, NW, 87123* PHONE: *(505) 292-7800*

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: *PRECISION SURVEYING* CONTACT: *LARRY MADRANO*

ADDRESS: *2929 COGRS BLVD. NW SUITE 105, ALBUQ. NM 87120* PHONE: *(505) 839-0569*

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
- X NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAN APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- X 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
- ___ OTHER _ EPC CONCEPTUAL PLAN

DATE SUBMITTED: *1/9/96*

BY: *RONALD R. BOHANNAN*

RECEIVED
JAN 10

DRAINAGE REPORT FOR

ROCKY MOUNTAIN R. V. & MARINE
SALES AND SERVICE

PREPARED FOR :

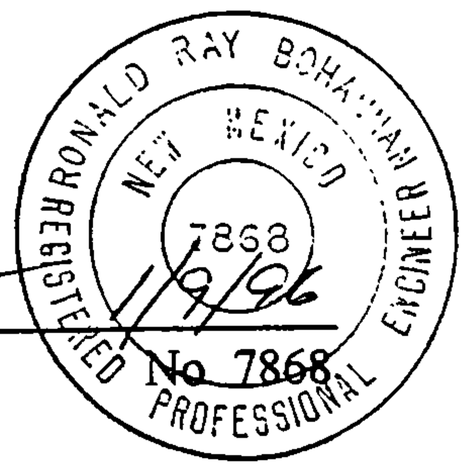
ROCKY MOUNTAIN R.V.
11109 CENTRAL AVENUE, N.E.
ALBUQUERQUE, NEW MEXICO 87123

PREPARED BY:

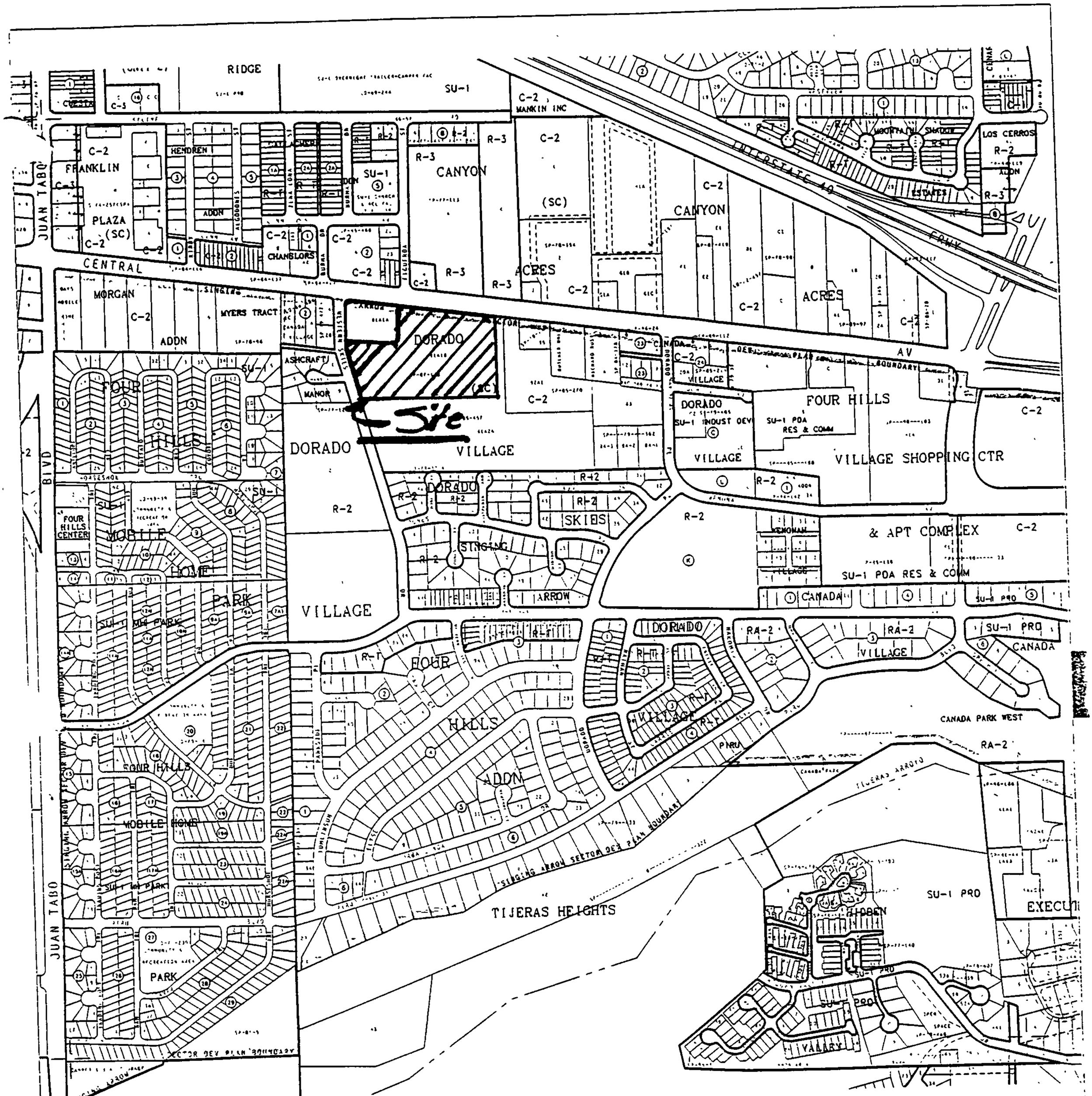
TIERRA WEST DEVELOPMENT
MANAGEMENT SERVICES
4421 McLeod RD. N.E., SUITE D
ALBUQUERQUE, NEW MEXICO
(505) 883-7592

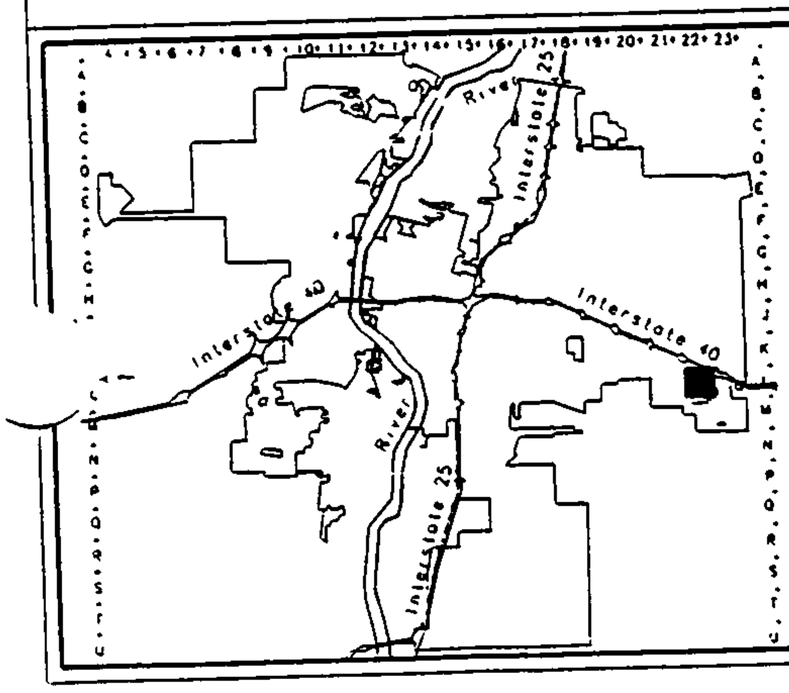
JANUARY, 1996

I certify that this report was prepared under my supervision, and I am a registered Professional Engineer in good standing with the State of New Mexico.



Ronald R. Bohannan
No. 7868





North

750 375 0 750

Scale 1" = 750'

A Albuquerque G Geographic I Information S System

City of Albuquerque

LEGAL DESCRIPTION

T10N

R4E

SEC 27

UNIFORM PROPERTY CODE

1-022-056

L-22-Z

PURPOSE

The intent of this report is to present the Drainage Management Plan for Building Permit Purpose and Site Development Plan approval. All applicable ordinances and the Development Process manual were utilized for this analysis.

LEGAL DESCRIPTION

The site is located at the southwest corner of a 42' private drive, Whispering Pines and Central Avenue. The site lies just east of Western Skies on the South side of Central Avenue. The street address is 12700 Central Avenue and comprises Lot B1A1B, Dorado Village, containing approximately 8.7303 acres.

DESIGN METHOD

The method used will be and is designated in Part A for smaller water sheds under 40 acres, as described in the Design Procedures Manual. The runoff was calculated based on 100-year, 10 day storm. The site lies within Zone 3, but to be more conservative, we have used the Zone 4 rain fall data in our runoff calculations due to proximity of zone line.

EXISTING CONDITIONS

The site lies on the South side and adjacent to Central Avenue and lies immediately East of Western Skies. A private access road (Whispering Pines) leads into a developed apartment complex on the East. Whispering Pines on the upstream development redirects and protects the site from any off-site flow ~~from~~ entering the site. Currently, flows on site sheet flows (W)est to Western Skies and off-site.

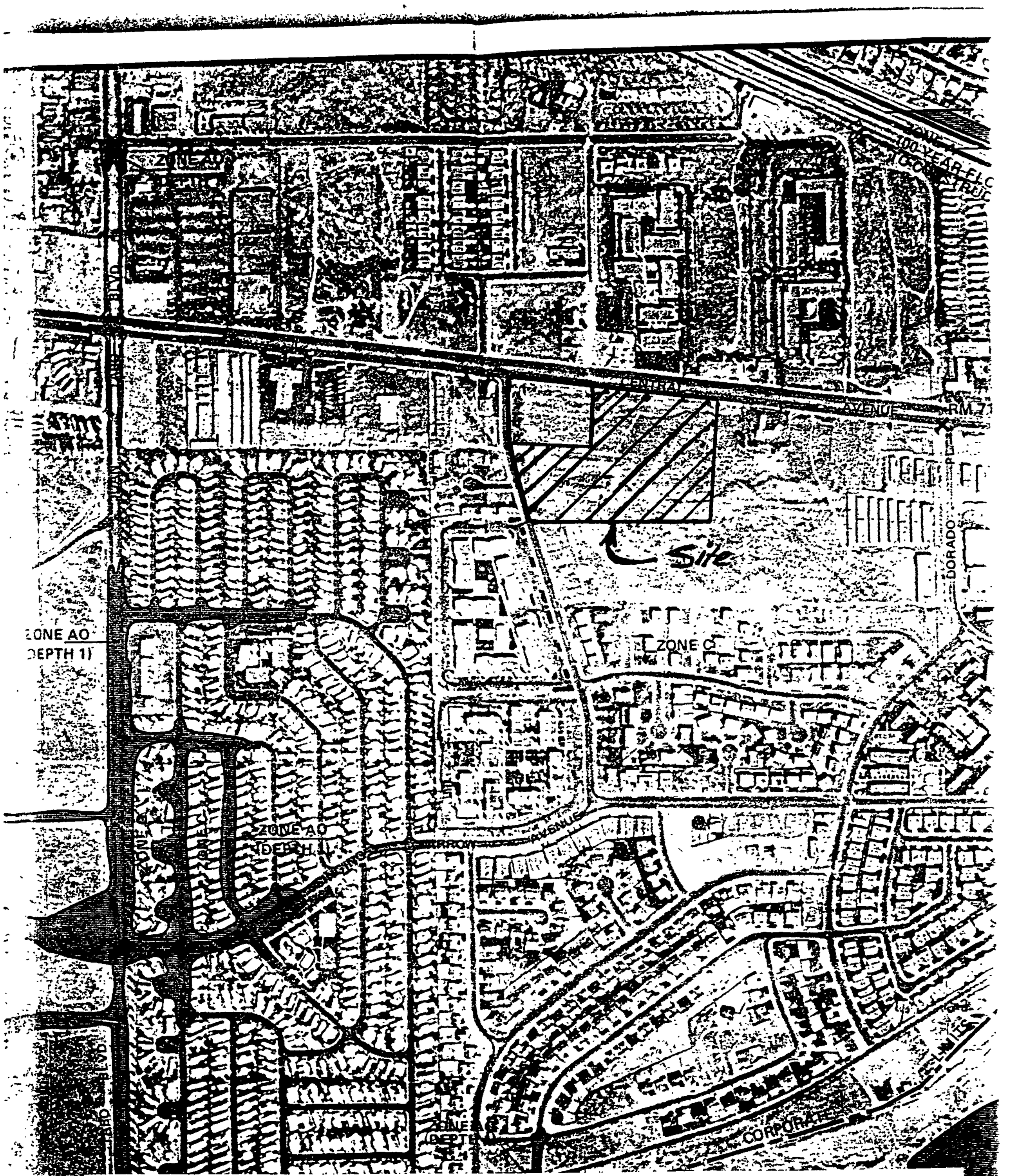
The site is partially developed with the site having approximately six inches (6") of base course over the entire site. Some landscaping, while ~~sparse~~, is present along the South and Eastern edge of the site. The existing flow rate is 25.48 cfs. According to FEMA MAP 350002-0037C the site dose not fall within the flood zone. See attached FEMA MAP.

To Weston Skies then ?

PROPOSED MANAGEMENT PLAN

The developed flows are being routed and collected in a detention basin located on the West side of the project. Three six inch lines limit the flow to 3.58 cfs which is considerably below historical rates and drains the pond within 24 hours. The three drains are routed to a sidewalk culvert where the flows discharge to Western Skies. This low flow will not impact streets downstream but will have a smaller flow over a longer period of time.

The City of Albuquerque has prepared storm drainage improvements in Central Avenue and Western Skies to handle localized flooding. We propose to detain the 100-year storm and discharge at a rate less than the undeveloped condition as a temporary solution until the storm drain is installed. Upon completion of the storm drain the flows can be redirected and connected



FEMA MAP 350002-0037C

to the drain line.

The developed flow rate for the site is 43.74 cfs. The following calculations show the existing flow rates as proposed discharges for the site.

EMERGENCY SPILLWAY/POND VOLUME.

The emergency spillway is designed for a full 100-year, 6-hour storm and to allow larger storms to overflow West to Western Skies. As mentioned, the pond will drain through three 6" pipes to a 24" sidewalk culvert. See the Grading and Drainage Plan for details. The maximum water surface for the 100-year, 6-hours storm is 5,263.84 which will discharge 3.85 cfs from the three pipes. The emergency spillway was designed to carry the 100-year flow rate of 41.74 cfs at a depth of .5 feet. 1.5 feet of free board is designed for larger storms.

The maximum 100-year storage needed is 1.2906 acre-feet or 52,218 cubic-feet. The pond provides 62,230.65 cubic-feet.

CALCULATION
TABLE OF CONTENTS

SAMPLE CALCULATIONS FOR ROCKY MOUNTAIN RV

The site is @ Zone 4

LAND TREATMENT

Treatment D:

D = 90 %

Treatment B:

B = 10 %

DEPTH (INCHES) @ 100-YEAR, 6-HR STORM

P_{60} = 2.23 inches

P_{360} = 2.90 inches

P_{1440} = 3.65 inches

DEPTH (INCHES) @ 10-YEAR, 6-HR STORM

P_{60} = 2.23 x 0.667
= 1.49 inches

P_{360} = 1.93

P_{1440} = 2.43

See the summary output from AHYMO calculations

	Q-(CFS) 100-YEAR	V-(AC-FT) 100-YEAR	Q-(CFS) 10-YEAR	V-(AC-FT) 10-YEAR
EXISTING	25.48	0.783	12.44	0.325
PROPOSED	43.74	1.808	28.65	1.132

PONDING TABLE

ELEV.	WT. ELEV.	V (CF)	V (AC-FT)	3-6" Drainge Pipes OUT-FLOW(CFS)
5562.10	0.10	2412.27	0.05538	0.90
5562.20	0.20	4898.14	0.11245	1.27
5562.30	0.30	7457.63	0.17120	1.55
5562.40	0.40	10090.71	0.23165	1.79
5562.50	0.50	12797.41	0.29379	2.01
5562.60	0.60	15577.71	0.35762	2.20
5562.70	0.70	18431.62	0.42313	2.37
5562.80	0.80	21359.14	0.49034	2.54
5562.90	0.90	24360.26	0.55923	2.69
5563.00	1.00	27434.99	0.62982	2.84
5563.10	1.10	30583.32	0.70210	2.97
5563.20	1.20	33805.27	0.77606	3.11
5563.30	1.30	37100.82	0.85172	3.23
5563.40	1.40	40469.97	0.92906	3.36
5563.50	1.50	43912.73	1.00810	3.47
5563.60	1.60	47429.10	1.08882	3.59
5563.70	1.70	51019.08	1.17124	3.70
5563.80	1.80	54682.66	1.25534	3.81
5563.90	1.90	58419.85	1.34114	3.91
5564.00	2.00	62230.65	1.42862	4.01

Q= CA SQRT(2gH)
C = 0.6
A = 3(¶ r²), r = 6/24
H= WATER DEPTH
g = 32.2

Volume Calculations

Surface Area at Water depth of 5564' = 38,476.00 sf

Surface Area at Water depth of 5562' = 23,754.65 sf

Volume at water depth of 5564' = (38476.00 + 23754.65)/2 * 2 = 62,230.65 CF

Chage in surface area at a given water depth = (38476.00 - 23754.65)/2 = 7360.68 SF/LF-water Depth

Volume at a given water depth (D) = ((7360.68*D + 23754.65) + 23754.65)/2 *D

EMERGENCY SPILLWAY CALCULATIONS

Width required for the emergency spillway:

We will design the emergency spillway for the pond based on the highest runoff from the lot (43.74 cfs).

$Q = CLH^{3/2}$
$Q = 43.74$ cfs
H = assuming a depth of 0.5'
C = 2.95
L = ? (Width of the emergency spillway)

$L = Q/CH^{3/2}$
$= 43.74/(2.95*0.5^{3/2})$
$= 41.94'$

we will use a 42' wide emergency spillway for the pond.

```
*
* DRAINAGE & PONDING CALCULATIONS FOR ROCKY MOUNTAIN RV
*
* EXISTING CONDITIONS 100-YEAR STORM
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=100.2 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* EXISTING CONDITIONS 10-YEAR STORM
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                     RAIN DAY=2.43 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=110.2 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* PROPOSED/FUTURE CONDITIONS 100-YEAR STORM
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* PROPOSED/FUTURE CONDITIONS 10-YEAR STORM
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                     RAIN DAY=2.43 IN DT=0.03333 HR
COMPUTE NM HYD       ID=2 HYD NO=110.1 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
*
* CHECKING FOR THE WATER HEIGHT AND OUTFLOW FOR THE PARKING LOT PONDING
*
ROUTE RESERVOIR      ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                     OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                          0.0000            0.00000         5262.00
                          0.9000            0.05538         5262.10
                          1.2700            0.11245         5262.20
                          1.5500            0.17120         5262.30
                          1.7900            0.23165         5262.40
                          2.0100            0.29379         5262.50
                          2.2000            0.35762         5262.60
                          2.3700            0.42313         5262.70
                          2.5400            0.49034         5262.80
                          2.6900            0.55923         5262.90
                          2.8400            0.62982         5263.00
                          2.9700            0.70210         5263.10
                          3.1100            0.77606         5263.20
```

3.2300	0.85172	5263.30
3.3600	0.92906	5263.40
3.4700	1.00810	5263.50
3.5900	1.08882	5263.60
3.7000	1.17124	5263.70
3.8100	1.25534	5263.80
3.9100	1.34114	5263.90
4.0100	1.42862	5264.00

FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =01/09/1996

INPUT FILE = A:POND.DAT USER NO.= R_BOHANN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	100.20	-	1	.01364	25.48	.783	1.07600	1.500	2.919	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.20	-	1	.01364	12.44	.325	.44688	1.500	1.424	PER IMP=	.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	100.10	-	1	.01364	43.74	1.808	2.48487	1.500	5.010	PER IMP=	90.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.10	-	2	.01364	28.65	1.132	1.55658	1.500	3.281	PER IMP=	90.00
ROUTE RESERVOIR	501.10	1	2	.01364	3.85	1.808	2.48485	2.200	.441	AC-FT=	1.291
FINISH											

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 01/09/1996
         START TIME (HR:MIN:SEC) = 13:59:32     USER NO.= R_BOHANN.I01
         INPUT FILE = A:POND.DAT

*
* DRAINAGE & PONDING CALCULATIONS FOR ROCKY MOUNTAIN RV
*
* EXISTING CONDITIONS 100-YEAR STORM
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.03333 HR

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =     .033330 HOURS        END TIME =     5.999400 HOURS
                   .0000   .0055   .0110   .0167   .0225   .0284   .0345
                .0406   .0469   .0534   .0600   .0668   .0738   .0809
                .0882   .0958   .1035   .1115   .1197   .1282   .1370
                .1461   .1555   .1653   .1754   .1860   .1971   .2086
                .2207   .2334   .2469   .2530   .2596   .2667   .2818
                .3156   .3677   .4425   .5446   .6787   .8498  1.0629
               1.3228  1.5642  1.6650  1.7500  1.8257  1.8946  1.9579
               2.0168  2.0718  2.1233  2.1719  2.2176  2.2608  2.3018
               2.3405  2.3773  2.4122  2.4453  2.4767  2.4850  2.4927
               2.5002  2.5074  2.5143  2.5210  2.5275  2.5338  2.5400
               2.5459  2.5518  2.5575  2.5630  2.5685  2.5738  2.5790
               2.5841  2.5891  2.5940  2.5988  2.6036  2.6082  2.6128
               2.6173  2.6218  2.6262  2.6305  2.6347  2.6389  2.6431
               2.6471  2.6512  2.6552  2.6591  2.6630  2.6668  2.6706
               2.6743  2.6780  2.6817  2.6853  2.6889  2.6925  2.6960
               2.6995  2.7029  2.7063  2.7097  2.7131  2.7164  2.7197
               2.7229  2.7262  2.7294  2.7325  2.7357  2.7388  2.7419
               2.7450  2.7480  2.7511  2.7541  2.7570  2.7600  2.7629
               2.7658  2.7687  2.7716  2.7745  2.7773  2.7801  2.7829
               2.7857  2.7885  2.7912  2.7939  2.7966  2.7993  2.8020
               2.8046  2.8073  2.8099  2.8125  2.8151  2.8177  2.8202
               2.8228  2.8253  2.8279  2.8304  2.8329  2.8353  2.8378
               2.8402  2.8427  2.8451  2.8475  2.8499  2.8523  2.8547
               2.8571  2.8594  2.8618  2.8641  2.8664  2.8687  2.8710
               2.8733  2.8756  2.8779  2.8801  2.8824  2.8846  2.8868
               2.8890  2.8912  2.8934  2.8956  2.8978  2.9000

COMPUTE NM HYD       ID=1 HYD NO=100.2 AREA=0.013641 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =   .134742HR    TP =   .133300HR    K/TP RATIO =  1.010815     SHAPE CONSTANT, N =  3.492236
    UNIT PEAK =   32.722    CFS   UNIT VOLUME =    .9999       B =   319.76      P60 = 2.2300
    AREA =      .013641 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

*
* EXISTING CONDITIONS 10-YEAR STORM
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
```

```
     RAIN DAY=2.43 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT =     .033330 HOURS        END TIME =     5.999400 HOURS
    .0000   .0035   .0071   .0108   .0145   .0184   .0223
    .0263   .0303   .0345   .0388   .0432   .0477   .0523
    .0570   .0619   .0669   .0721   .0774   .0829   .0886
    .0945   .1006   .1069   .1135   .1203   .1275   .1349
    .1428   .1510   .1597   .1638   .1682.  .1730   .1831
    .2057   .2405   .2904   .3586   .4483   .5626   .7049
    .8786  1.0399  1.1072  1.1641  1.2147  1.2606  1.3030
   1.3423  1.3791  1.4135  1.4459  1.4765  1.5054  1.5327
   1.5586  1.5832  1.6065  1.6286  1.6496  1.6551  1.6603
   1.6653  1.6701  1.6747  1.6792  1.6835  1.6877  1.6918
   1.6958  1.6997  1.7035  1.7072  1.7108  1.7143  1.7178
   1.7212  1.7245  1.7278  1.7310  1.7341  1.7372  1.7403
   1.7433  1.7462  1.7491  1.7520  1.7548  1.7576  1.7603
   1.7630  1.7657  1.7684  1.7710  1.7735  1.7761  1.7786
   1.7811  1.7835  1.7859  1.7883  1.7907  1.7931  1.7954
   1.7977  1.8000  1.8022  1.8045  1.8067  1.8089  1.8111
   1.8132  1.8153  1.8175  1.8196  1.8216  1.8237  1.8258
   1.8278  1.8298  1.8318  1.8338  1.8358  1.8377  1.8396
   1.8416  1.8435  1.8454  1.8473  1.8491  1.8510  1.8528
   1.8547  1.8565  1.8583  1.8601  1.8619  1.8637  1.8654
   1.8672  1.8689  1.8706  1.8724  1.8741  1.8758  1.8775
   1.8792  1.8808  1.8825  1.8841  1.8858  1.8874  1.8890
   1.8907  1.8923  1.8939  1.8955  1.8970  1.8986  1.9002
   1.9017  1.9033  1.9048  1.9064  1.9079  1.9094  1.9109
   1.9124  1.9139  1.9154  1.9169  1.9184  1.9199  1.9213
   1.9228  1.9242  1.9257  1.9271  1.9285  1.9300

COMPUTE NM HYD      ID=1 HYD NO=110.2 AREA=0.013641 SQ MI
                    PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                    TP=-0.1333 HR MASS RAINFALL=-1

    K =   .137678HR    TP =   .133300HR    K/TP RATIO =  1.032845     SHAPE CONSTANT, N =  3.417757
    UNIT PEAK =   32.161    CFS   UNIT VOLUME =    .9997       B =   314.28      P60 = 1.4900
    AREA =      .013641 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

*
* PROPOSED/FUTURE CONDITIONS 100-YEAR STORM
*
START               TIME=0.0
RAINFALL            TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                    RAIN DAY=3.65 IN DT=0.03333 HR

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =     .033330 HOURS        END TIME =     5.999400 HOURS
                   .0000   .0055   .0110   .0167   .0225   .0284   .0345
                   .0406   .0469   .0534   .0600   .0668   .0738   .0809
                   .0882   .0958   .1035   .1115   .1197   .1282   .1370
                   .1461   .1555   .1653   .1754   .1860   .1971   .2086
                   .2207   .2334   .2469   .2530   .2596   .2667   .2818
                   .3156   .3677   .4425   .5446   .6787   .8498  1.0629
                  1.3228  1.5642  1.6650  1.7500  1.8257  1.8946  1.9579
                  2.0168  2.0718  2.1233  2.1719  2.2176  2.2608  2.3018
                  2.3405  2.3773  2.4122  2.4453  2.4767  2.4850  2.4927
                  2.5002  2.5074  2.5143  2.5210  2.5275  2.5338  2.5400
```

2.5459	2.5518	2.5575	2.5630	2.5685	2.5738	2.5790
2.5841	2.5891	2.5940	2.5988	2.6036	2.6082	2.6128
2.6173	2.6218	2.6262	2.6305	2.6347	2.6389	2.6431
2.6471	2.6512	2.6552	2.6591	2.6630	2.6668	2.6706
2.6743	2.6780	2.6817	2.6853	2.6889	2.6925	2.6960
2.6995	2.7029	2.7063	2.7097	2.7131	2.7164	2.7197
2.7229	2.7262	2.7294	2.7325	2.7357	2.7388	2.7419
2.7450	2.7480	2.7511	2.7541	2.7570	2.7600	2.7629
2.7658	2.7687	2.7716	2.7745	2.7773	2.7801	2.7829
2.7857	2.7885	2.7912	2.7939	2.7966	2.7993	2.8020
2.8046	2.8073	2.8099	2.8125	2.8151	2.8177	2.8202
2.8228	2.8253	2.8279	2.8304	2.8329	2.8353	2.8378
2.8402	2.8427	2.8451	2.8475	2.8499	2.8523	2.8547
2.8571	2.8594	2.8618	2.8641	2.8664	2.8687	2.8710
2.8733	2.8756	2.8779	2.8801	2.8824	2.8846	2.8868
2.8890	2.8912	2.8934	2.8956	2.8978	2.9000	

COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.013641 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 48.470 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 2.2300
AREA = .012277 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .134742HR TP = .133300HR K/TP RATIO = 1.010815 SHAPE CONSTANT, N = 3.492236
UNIT PEAK = 3.2722 CFS UNIT VOLUME = .9962 B = 319.76 P60 = 2.2300
AREA = .001364 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

*
* PROPOSED/FUTURE CONDITIONS 10-YEAR STORM
*
START TIME=0.0
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.49 IN RAIN SIX=1.93 IN
RAIN DAY=2.43 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033330 HOURS END TIME = 5.999400 HOURS

.0000	.0035	.0071	.0108	.0145	.0184	.0223
.0263	.0303	.0345	.0388	.0432	.0477	.0523
.0570	.0619	.0669	.0721	.0774	.0829	.0886
.0945	.1006	.1069	.1135	.1203	.1275	.1349
.1428	.1510	.1597	.1638	.1682	.1730	.1831
.2057	.2405	.2904	.3586	.4483	.5626	.7049
.8786	1.0399	1.1072	1.1641	1.2147	1.2606	1.3030
1.3423	1.3791	1.4135	1.4459	1.4765	1.5054	1.5327
1.5586	1.5832	1.6065	1.6286	1.6496	1.6551	1.6603
1.6653	1.6701	1.6747	1.6792	1.6835	1.6877	1.6918
1.6958	1.6997	1.7035	1.7072	1.7108	1.7143	1.7178
1.7212	1.7245	1.7278	1.7310	1.7341	1.7372	1.7403
1.7433	1.7462	1.7491	1.7520	1.7548	1.7576	1.7603
1.7630	1.7657	1.7684	1.7710	1.7735	1.7761	1.7786
1.7811	1.7835	1.7859	1.7883	1.7907	1.7931	1.7954
1.7977	1.8000	1.8022	1.8045	1.8067	1.8089	1.8111
1.8132	1.8153	1.8175	1.8196	1.8216	1.8237	1.8258
1.8278	1.8298	1.8318	1.8338	1.8358	1.8377	1.8396

1.8416	1.8435	1.8454	1.8473	1.8491	1.8510	1.8528
1.8547	1.8565	1.8583	1.8601	1.8619	1.8637	1.8654
1.8672	1.8689	1.8706	1.8724	1.8741	1.8758	1.8775
1.8792	1.8808	1.8825	1.8841	1.8858	1.8874	1.8890
1.8907	1.8923	1.8939	1.8955	1.8970	1.8986	1.9002
1.9017	1.9033	1.9048	1.9064	1.9079	1.9094	1.9109
1.9124	1.9139	1.9154	1.9169	1.9184	1.9199	1.9213
1.9228	1.9242	1.9257	1.9271	1.9285	1.9300	

COMPUTE NM HYD ID=2 HYD NO=110.1 AREA=0.013641 SQ MI
PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
TP=-0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 48.470 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 1.4900
AREA = .012277 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .137678HR TP = .133300HR K/TP RATIO = 1.032845 SHAPE CONSTANT, N = 3.417757
UNIT PEAK = 3.2161 CFS UNIT VOLUME = .9959 B = 314.28 P60 = 1.4900
AREA = .001364 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

*
* CHECKING FOR THE WATER HEIGHT AND OUTFLOW FOR THE PARKING LOT PONDING
*
ROUTE RESERVOIR ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.00000	5262.00
0.9000	0.05538	5262.10
1.2700	0.11245	5262.20
1.5500	0.17120	5262.30
1.7900	0.23165	5262.40
2.0100	0.29379	5262.50
2.2000	0.35762	5262.60
2.3700	0.42313	5262.70
2.5400	0.49034	5262.80
2.6900	0.55923	5262.90
2.8400	0.62982	5263.00
2.9700	0.70210	5263.10
3.1100	0.77606	5263.20
3.2300	0.85172	5263.30
3.3600	0.92906	5263.40
3.4700	1.00810	5263.50
3.5900	1.08882	5263.60
3.7000	1.17124	5263.70
3.8100	1.25534	5263.80
3.9100	1.34114	5263.90
4.0100	1.42862	5264.00

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5262.00	.000	.00
.80	1.54	5262.03	.015	.25
1.60	30.19	5263.22	.790	3.13
2.40	2.13	5263.82	1.275	3.83

3.20	.70	5263.62	1.104	3.61
4.00	.53	5263.38	.913	3.33
4.80	.49	5263.15	.736	3.03
5.60	.50	5262.93	.578	2.73
6.40	.04	5262.71	.432	2.39
7.20	.00	5262.49	.288	1.99
8.00	.00	5262.30	.171	1.55
8.80	.00	5262.15	.084	1.08
9.60	.00	5262.05	.030	.49
10.40	.00	5262.02	.010	.17
11.20	.00	5262.01	.004	.06
12.00	.00	5262.00	.001	.02
12.80	.00	5262.00	.000	.01
13.60	.00	5262.00	.000	.00

PEAK DISCHARGE = 3.851 CFS - PEAK OCCURS AT HOUR 2.20
MAXIMUM WATER SURFACE ELEVATION = 5263.841
MAXIMUM STORAGE = 1.2906 AC-FT INCREMENTAL TIME= .033330HRS

*

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 13:59:33

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 16, 1996

Ronald Bohannan
Tierra West Development
4421 McCleod NE
Suite D
Albuquerque, NM 87109

RE: ROCKY MOUNTAIN R.V. (L22-D35) DRAINAGE REPORT AND GRADING PLAN SUBMITTAL FOR SITE DEVELOPMENT PLAN FOR SUBDIVISION APPROVAL, BUILDING PERMIT APPROVAL, AND GRADING PERMIT APPROVAL. ENGINEER'S STAMP DATED 1-9-96.

Dear Mr. Bohannan:

Based on the information provided on your January 10, 1996 submittal, the above referenced project is approved for Site Development Plan for Subdivision only.

Prior to your next submittal, please address the following comments:

1. Provide finish floor elevations to mean sea level for all building pads.

2. Please show more spot elevations. In particular, show spot elevations adjacent to your site along Central, along Whispering Sands, and along Western Skies.

3. Show roof drain locations.

4. Which way does Tract B-1-A-1-A drain? Please provide existing contours in this area.

If I can be of further assistance, please feel free to contact me at 768-3622.

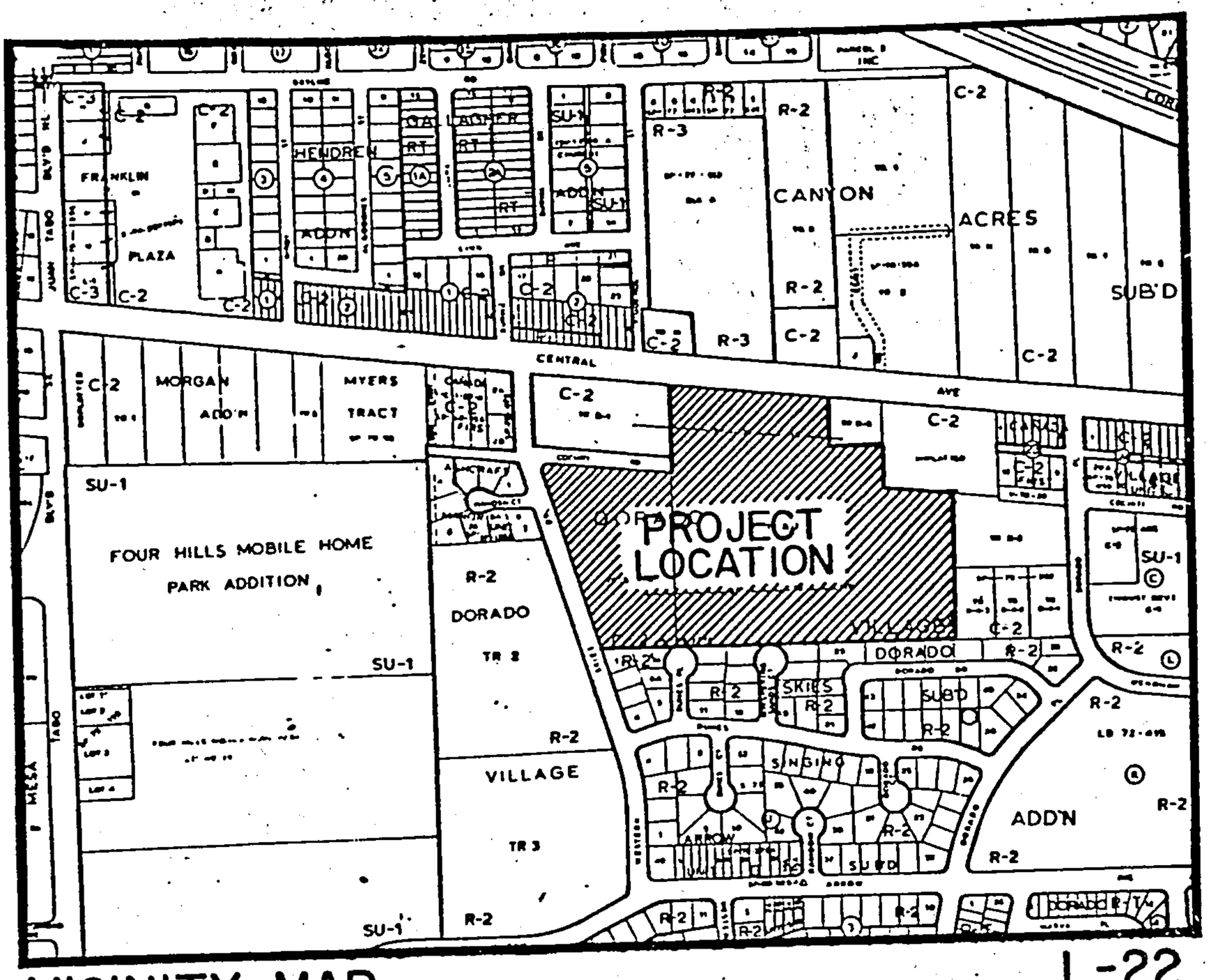
Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



VICINITY MAP

SCALE 1" = 800'

L-22

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. HANOSH
3792
AND LAND SURVEYOR

2/6/84

L22-D35

NOTICE TO CONTRACTOR

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 "Public Works Contract No. 84-1".

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 obstructions. 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 compaction shall be according to ARTERIAL street use.

Permit NO. 13595 Gavino Rivera Concrete D-21

APPROVALS	NAME	DATE
A.C.E./ DESIGN	J. Kulick	6 Feb 84
INSPECTOR	Ernest B. Vallejos	7/31/84
A.C.E./ FIELD	W. T. McNamara	8/1/84

TITLE: SIDEWALK CULVERT
DON L. HANOSH SELF-STORAGE UNITS
12814 CENTRAL AVE. S.E.

PERMIT NO.

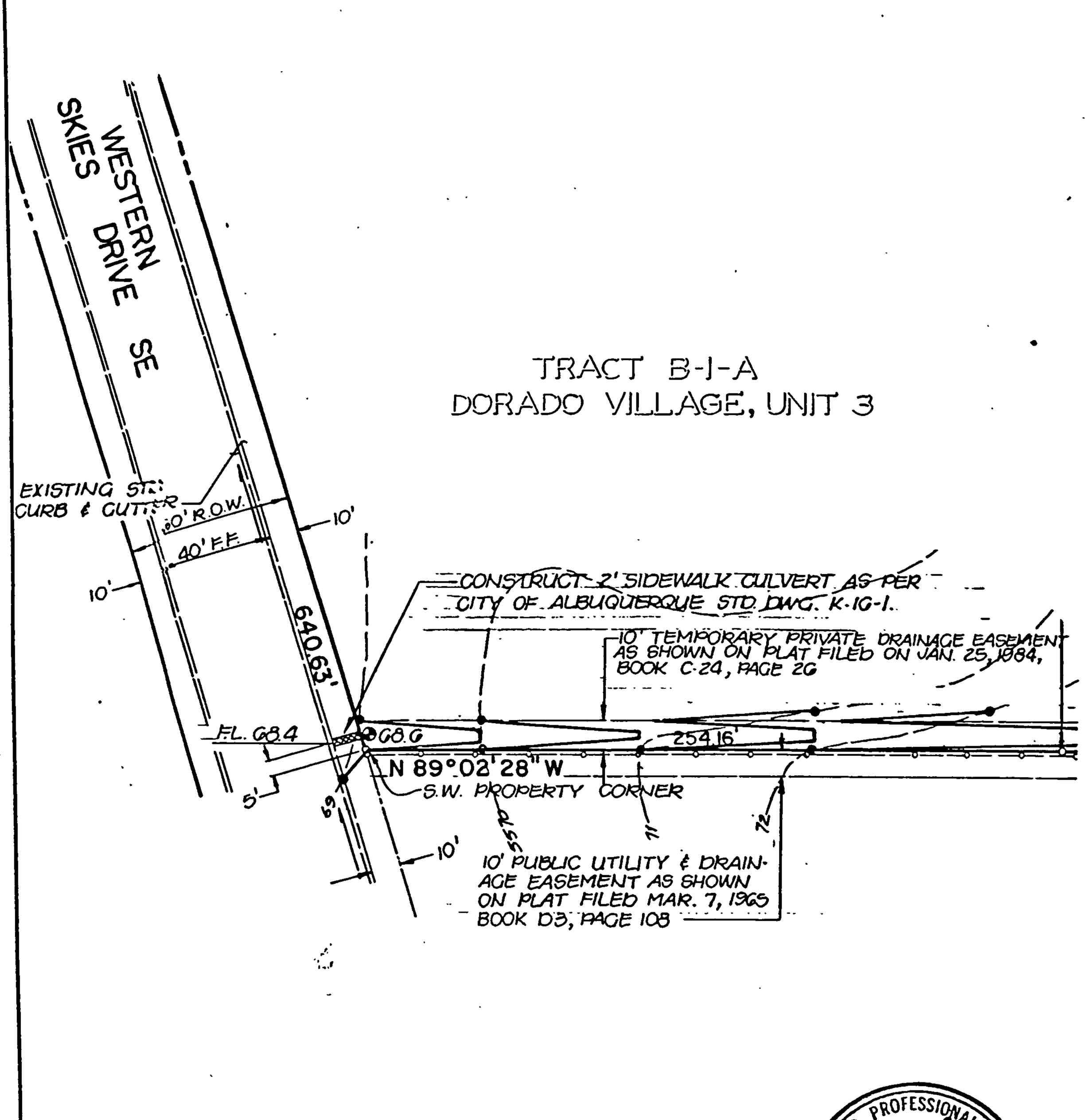
SHEET 1 OF 2

MAP NO. L-22

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY

SCALE: 1"=50'



TRACT B-1-A
DORADO VILLAGE, UNIT 3

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
STATE OF NEW MEXICO
THOMAS J. MULLIAN, III
3602
2/6/84

D-21

APPROVALS	NAME	DATE
A.C.E. / DESIGN	G. Kulisch	6 Feb 84
INSPECTOR	Ernest B. Vallejos Jr.	7/31/84
A.C.E. / FIELD	W. J. McNamara	8/1/84

TITLE: SIDEWALK CULVERT
DON L. HANOSH SELF-STORAGE UNITS
12814 CENTRAL AVE. S.E.

PERMIT NO.
SHEET 2 OF 2

MAP NO. L-22

40191

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. 422 DATE: 08/10/84

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: SMITH-CARVER SHOPPING CENTER

ATTENDANCE: WHO	REPRESENTING
J. MORTENSEN	
B. GOOLSBY	

FINDINGS:

1 - Approved drainage plan per DPM req'd prior to Building Permit sign-off.
2. Recommend discharge directly to existing storm drain system in Central Ave.
3 - Discharge to Western Skies permissible, however, potential for localized flooding exists.
4 - No flooding in Central per panel 37 of FIS.

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: Billy A. Goolsby
TITLE: CE/Hydrologist
DATE: 8/10/84

SIGNED: Jeffrey Mortensen
TITLE: [illegible]
DATE: 08/10/84

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Western Skies Shopping Village ZONE ATLAS/DRNG. FILE #: L-22/D 35

LEGAL DESCRIPTION: Tract B.1.A.1 Dorado Village Unit 3

CITY ADDRESS: _____

ENGINEERING FIRM: Tom Mann & Assoc Inc CONTACT: Tom Mann

ADDRESS: 811 Dallas NE PHONE: 265-5611

OWNER: Bill Carver CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: Burns & Peters CONTACT: Ron Peters

ADDRESS: 8000 Pennsylvania Circle PHONE: 265-3645

SURVEYOR: Tom Mann CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: Unknown CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

✓ YES

___ NO

✓ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 84-654 / V-84-75

EPC NO. Z-73-172-1

PROJ. NO. _____

RECEIVED
DEC 10 1984
HYDROLOGY SECTION

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

✓ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

✓ SITE DEVELOPMENT PLAN APPROVAL

✓ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 12.9.84

BY: Tom Mann

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

January 10, 1985

Tom Mann
Tom Mann & Associates, Inc.
811 Dallas, NE
Albuquerque, New Mexico 87110

RE: GRADING & DRAINAGE PLAN FOR WESTERN SKIES SHOPPING VILLAGE (L-22/D35) RECEIVED DECEMBER 10, 1985

Dear Tom:

I have reviewed the referenced submittal and forward these comments:

1. Downstream capacity has not been addressed. What size is storm sewer system in Central Avenue and what is the capacity? What is the capacity of the lateral?

2. Please provide the hydraulics for the overflow spillway. Also, please show a section of the spillway in the lengthwise section.

3. An approved "Drainage Facilities Within City Right-of-Way/ Easement" document will be required for the tie in to the catch basin and the spillway.

4. The property line is required to be 0.33 feet above adjacent City streets. It does not appear that this requirement has been met along Central Avenue.

5. Standard drivepads have a minimum elevation difference between the gutter and property line of one foot. This is not indicated on the plan.

6. You state that there will not be any off-site flow from the east because of development. Yet, the plan does not indicate any development that prevents the flow from entering this site. Also, there is a future drive-pad indicated that could convey flow onto the site.

7. How will the loading dock ramp, at the back of the building be drained? The spot elevations indicate that it is 3+ feet below the surrounding grade.

8. Roof drains need to be shown.

If you should have any questions or comments, please call me at 766-7644.

Cordially,

Billy J. Goolsby

Billy J. Goolsby, C.E.
Design Hydrology Section

BJG/bsj

L22/D35

Trammell Crow Company

Commercial
P.O. Box 25346
Albuquerque, New Mexico 87125
40 First Plaza, Suite 65
Albuquerque, New Mexico 87102
(505) 843-7525

DRB 88-186

RECEIVED
APR 14 1988
HYDROLOGY SECTION

April 14, 1988

City of Albuquerque
DRB Committee Members
P.O. Box 1293
Albuquerque, NM 87103

HAND DELIVERED

Attn: Jack Cloud; Planning Director
David Harmon; Traffic Engineer
Fred Aguirre; City Engineer & AMAFCA
Theresa Stone; Parks & Recreation
William Westmoreland; Water Resources

Ref: EPC # Z-87-125; DRB hearing April 19, 1988
Central Ave.\Western Skies Site\Landscape Plan

Dear Sirs:

The attached drawing by Bohannan Huston, Inc., revision date 4-13-88, includes the changes requested by DRB on April 5, 1988. This drawing supercedes the drawing dated 9-24-87, which was submitted with the our DRB application on April 6th for inclusion in the DRB hearing agenda of April 19th. I'm sorry for any inconvenience that this mixup may have caused you.

Sincerely,

THE TRAMMELL CROW COMPANY

Mark K. Mullane
Construction\Property Manager

MKM\mkm

pc: Paul Silverman - TCC
Harold Martinez
Bill Buckley

Trammell Crow Company

Commercial
P.O. Box 25346
Albuquerque, New Mexico 87125
40 First Plaza, Suite 65
Albuquerque, New Mexico 87102
(505) 843-7525

April 14, 1988

City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Attn: Jack Cloud; Planning Department
Fred Aguirre; Hydrology Department
Roger Green; Hydrology Department
Jim Hicks; Hydrology Department
Andre Houle; Public Works Department

Ref: HomeClub\Midtown Replat

Dear Sirs:

The Trammell Crow Company extends it's sincere appreciation of your efforts in expediting the signing to the HomeClub\Midtown Business Park Replat. Your professional efforts enabled us to close on the sale of the HomeClub building in a timely fashion, which was extremely important to us. Thankyou again for your special attention to this matter.

Sincerely,

THE TRAMMELL CROW COMPANY

Mark K. Mullane
Construction\Property Manager

MKM\mkm

pc: Paul Silverman - TCC