PUBLIC WORKS/HYDROLOGY

A14/D4A2

ONSITE HY DROLOGY CALCULATIONS
TRACT D-4-K-2 SEVEN BAR RANCH
ALBUQUERQUE, NEW MEXICO

LEGAL DESCRIPTION: TRACT D-4-K-2 , SEVEN BAR RANCH
ALBUQUERQUE, NEW MEXICO

FLOOD ZONE: N/A

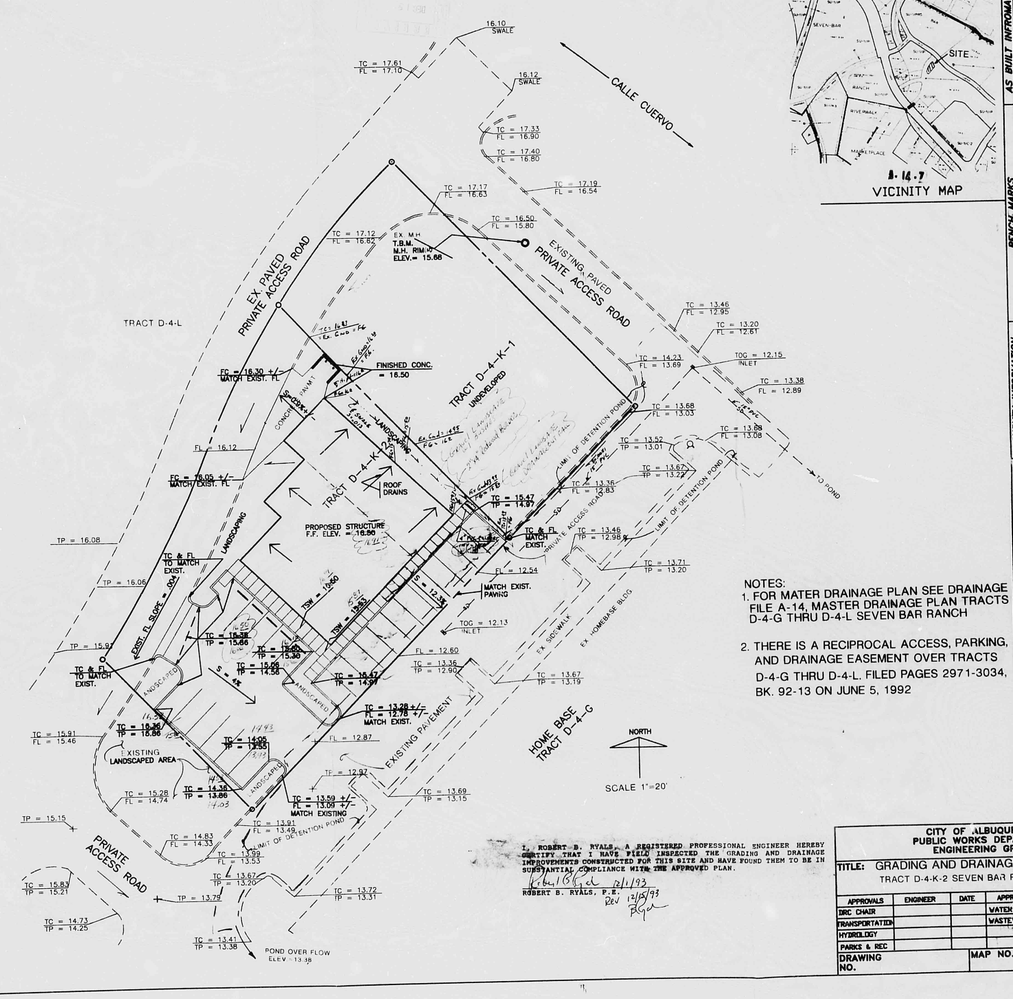
SITE DESCRIPTION: THE SITE IS A TRACT OF VACANT LAND WHICH IS A PORTION OF THE SITE PLAN FOR SUBDIVISION OF TRACT D-4 (SEVEN BAR RANCH). THE SITE IS INCLUDED IN THE APPROVED MASTER DRAINAGE PLAN FOR TRACTS D-4-G THRU D-4-L OF SEVEN BAR RANCH. THE MASTER PLANNED DRAINAGE IMPROVEMENTS INCLUDE PONDS, PAVING AND ST F DRAIN SYSTEMS HAVE RECENTLY BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLAN. THE SITE IS BOUNDED ON THE NORTH BY THE UNDEVELOPED TRACT D-4-K-1, ON THE EAST BY THE RECENTLY CONSTRUCTED HOME BASE SHOPPING CENTER, ON THE WEST BY THE UNIMPROVED TRACT D-4-L AND ON THE SOUTH BY A PORTION OF THE HOME BASE PARKING LOT.

PROPOSED IMPROVEMENTS: IT IS PROPOSED TO CONSTRUCT A 7500 S.F. COMBINATION RETAIL WAREHOUSE CENTER WITH PARING AND LANDSCAPING AS SHOWN.

HYDROLOGY METHOD: ANYMO (COMPUTER PROGRAM, AMAFCA HYDROLOGY CRITERIA)

REFERENCE: SECTION 22.2 (HYDROLOGY) OF THE DEVELOPMENT PROCESS MANUAL, CITY OF ALBUQUERQUE, AUGUST, 1991.

HYDROLOGIC PARAMETERS:
1. RAINFALL - 100 YR 6 HR DURATION - P360=2.22 IN (FIG. 5)
2. LAND TREATMENTS
A) HISTORICAL: NATURAL, (TREATMENT A)AREA= .439 AC.=) 122 S
C) PROPOSED : TREATMENT A, NATURAL AREA = -0- SF
TREATMENT B, IRRIGATED AREA = 3042 SF
TREATMENT C, UNPAVED AREA = -0- SF
TREATMENT D, BLDG/PAVED AREA = 16080 SF
TOTAL AREA = 19122 SF
3. TIME OF CONCENTRATION = 12 MIN.
4. RUNOFF VOLUME AND PEAK DISCHARGE:
A) HISTORICAL:
VOLUME (100 YR 6 HR FROM ANYMO) = .481 IN.= 7.5 CF
PEAK DISCHARGE (100 YR 6 HR FROM ANYMO) = .53 CFS
B) PROPOSED:
VOLUME (100YR 6 HR FROM ANYMO)= 1.7681IN = 2847 CF
PEAK DISCHARGE (100 YR 6 HR FROM ANYMO) = 1.8 CFS
5. CONCLUSION: THE PROPOSED ADES PROVIDE FOR THE FREE DISCHARGE OF STORM WATER TO ADJACENT PAVED ACCESS ROADS IN ACCORDANCE WITH THE APPROVED MASTER DRAINAGE PLAN FOR THE AREA. IT SHOULD BE NOTED THAT THE APPROVED PLAN ASSUMES TRACT D-4-K TO BE 100% IMPERVIOUS AND THIS PLAN INCLUDES A 15.0% LANDSCAPED AREA WHICH WILL REDUCE THE IMPACT OF THIS DEVELOPMENT ON THE MASTER PLANNED DRAINAGE SYSTEM.



A-14-Z
VICINITY MAP

NOTES:
1. FOR MATER DRAINAGE PLAN SEE DRAINAGE FILE A-14, MASTER DRAINAGE PLAN TRACTS D-4-G THRU D-4-L SEVEN BAR RANCH
2. THERE IS A RECIPROCAL ACCESS, PARKING, AND DRAINAGE EASEMENT OVER TRACTS D-4-G THRU D-4-L. FILED PAGES 2971-3034, BK. 92-13 ON JUNE 5, 1992

LEGEND

- EXISTING STREET LIGHT
- EXISTING MANHOLE
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- EXISTING HEADER CURB
- SD — EXISTING STORM DRAIN
- SAS 8" — EXISTING SANITARY SEWER LINE
- W 8" — EXISTING WATER LINE
- EXISTING EASEMENT
- PROPERTY LINE
- FINISH GRADE ELEV.
- AS-(CONSTRUCTED) ELEV

I, ROBERT B. RYALS, A REGISTERED PROFESSIONAL ENGINEER HEREBY CERTIFY THAT I HAVE FIELD INSPECTED THE GRADING AND DRAINAGE IMPROVEMENTS CONSTRUCTED FOR THIS SITE AND HAVE FOUND THEM TO BE IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN.
2/1/93
ROBERT B. RYALS, P.E.
Rev 12/8/93

AS BUILT INFORMATION
BENCH MARKS
N.M.S.H.C. MONUMENT: 7NM-448-N1Z
ELEVATION = 5033.41
MICRO-FILM INFORMATION

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE:
DATE:
DATE:

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: GRADING AND DRAINAGE PLAN
TRACT D-4-K-2 SEVEN BAR RANCH

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIR			WATER		
TRANSPORTATION			WASTEWATER		
HYDROLOGY					
PARKS & REC					

DRAWING NO. | MAP NO. | SHEET 4 OF

LDMASL.DWG SCALE 1=20

R# 32 DATE 3-13-92 OV EPR

CITY OF ALBUQUERQUE

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The photographic process used meets the Basic Microfilm Standards of the National Micrographics Association (MSAIL-1977)

DIREC, R

NOTARY PUBLIC
OFFICIAL SEAL
Rebecca Duran
07/03/92/and

CITY OF ALBUQUERQUE
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PLANS/PLATS ON FILE

FILE DESC: A14/D4A2

PLANS/PLATS 3

F 30 D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D F

ONSITE HYDROLOGY CALCULATIONS
TRACT D-4-K-2 SEVEN BAR RANCH
ALBUQUERQUE, NEW MEXICO

LEGAL DESCRIPTION: TRACT D-4-K-2 , SEVEN BAR RANCH
ALBUQUERQUE, NEW MEXICO

FLOOD ZONE: N/A

SITE DESCRIPTION: THE SITE IS A TRACT OF VACANT LAND WHICH IS A PORTION OF THE SITE PLAN FOR SUBDIVISION OF TRACT D-4 SEVEN BAR RANCH. THE SITE IS INCLUDED IN THE APPROVED MASTER DRAINAGE PLAN FOR TRACTS D-4-G THRU D-4-L OF SEVEN BAR RANCH. THE MASTER PLANNED DRAINAGE IMPROVEMENTS INCLUDING PONDS, PAVING AND STORM DRAIN SYSTEMS HAVE RECENTLY BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLAN. THE SITE IS BOUNDED ON THE NORTH BY THE UNDEVELOPED TRACT D-4-K-1; ON THE EAST BY THE RECENTLY CONSTRUCTED HOME BASE SHOPPING CENTER; ON THE WEST BY THE UNIMPROVED TRACT D-4-L AND ON THE SOUTH BY A PORTION OF THE HOME BASE PARKING LOT.

PROPOSED IMPROVEMENTS: IT IS PROPOSED TO CONSTRUCT A 7500 S.F. COMBINATION RETAIL WAREHOUSE CENTER WITH PARKING AND LANDSCAPING AS SHOWN.

HYDROLOGY METHOD: ARYMO COMPUTER PROGRAM, AMAFCA HYDROLOGIC MODEL

REFERERENCE: SECTION 22.2 -(HYDROLOGY) OF THE DEVELOPMENT PROCESS MANUAL, CITY OF ALBUQUERQUE, AUGUST, 1991.

HYDROLOGIC PARAMETERS:
1. RAINFALL - 100 YR 6 HR DURATION - P60=1.97 IN (FIG. D)
- P360=2.22 IN (FIG. E)

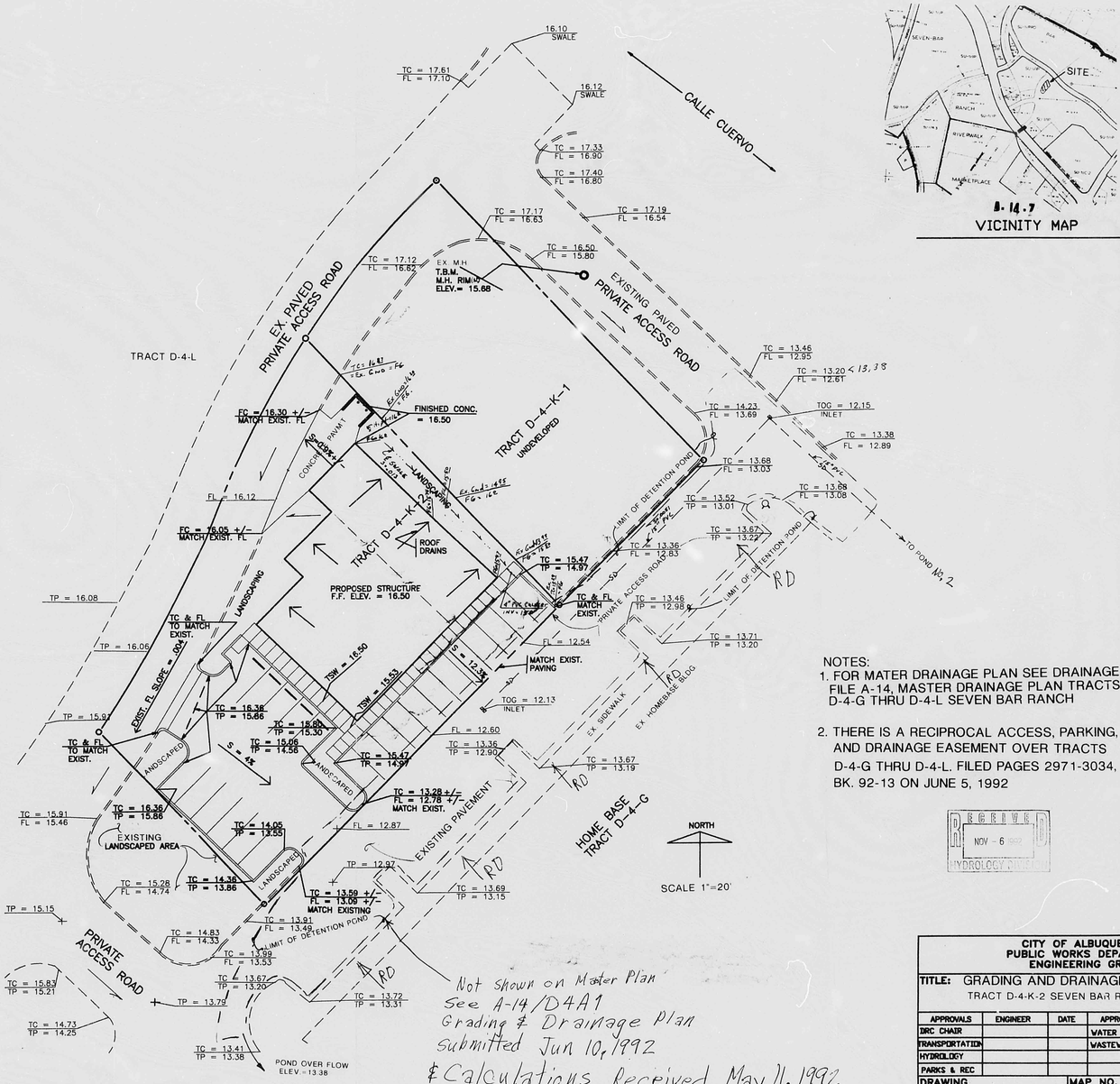
2. LAND TREATMENTS
A) HISTORICAL: NATURAL, (TREATMENT A)AREA= .439 AC.=19122 SF
C) PROPOSED : TREATMENT A, NATURAL AREA = -0- SF
TREATMENT B, IRRIGATED AREA = 3042 SF
TREATMENT C, UNPAVED AREA = -0- SF
TREATMENT D, BLDG./PAVED AREA = 16080 SF
TOTAL AREA = 19122 SF

3. TIME OF CONCENTRATION = 12 MIN.

4. RUNOFF VOLUME AND PEAK DISCHARGE:
A) HISTORICAL:
VOLUME (100 YR 6 HR FROM ARYMO) =.481 IN.= 766 CF
PEAK DISCHARGE (100 YR 6 HR FROM ARYMO) = .63 CFS
B) PROPOSED:
VOLUME (100YR 6 HR FROM ARYMO)= 1.786IN.= 2846 CF
PEAK DISCHARGE (100 YR 6 HR FROM ARYMO) = 1.87 CFS

5. CONCLUSION: THE PROPOSED GRADES PROVIDE FOR THE FREE DISCHARGE OF STORM WATER TO ADJACENT PAVED ACCESS ROADS IN ACCORDANCE WITH THE APPROVED MASTER DRAINAGE PLAN FOR THE AREA. IT SHOULD BE NOTED THAT THE APPROVED PLAN ASSUMED TRACT D-4-K TO BE 100% IMPERVIOUS AND THIS PLAN INCLUDES A 15.3% LANDSCAPED AREA WHICH WILL REDUCE THE IMPACT OF THIS DEVELOPMENT ON THE MASTER PLANNED DRAINAGE SYSTEM.

(A-14/D4A)
Conceptual Plan Dated 04/27/92
had 12% Landscaped Area.



B-14-7
VICINITY MAP

NOTES:
1. FOR MATER DRAINAGE PLAN SEE DRAINAGE FILE A-14, MASTER DRAINAGE PLAN TRACTS D-4-G THRU D-4-L SEVEN BAR RANCH
2. THERE IS A RECIPROCAL ACCESS, PARKING, AND DRAINAGE EASEMENT OVER TRACTS D-4-G THRU D-4-L. FILED PAGES 2971-3034, BK. 92-13 ON JUNE 5, 1992

RECEIVED NOV - 6 1992 HYDROLOGY DIVISION

LEGEND

- EXISTING STREET LIGHT
- EXISTING MANHOLE
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- EXISTING HEADER CURB
- SD — EXISTING STORM DRAIN
- SAS 8" — EXISTING SANITARY SEWER LINE
- W 8" — EXISTING WATER LINE
- EXISTING EASEMENT
- PROPERTY LINE
- FL 5000.00 — FINISH GRADE ELEV.
- TC / FL — EXIST ELEV.

LOMAS1.DWG SCALE 1=20

Not shown on Master Plan
See A-14/D4A1
Grading & Drainage Plan
submitted Jun 10, 1992
& Calculations Received May 11, 1992

AS BUILT INFORMATION		
CONTRACTOR		
WORK STAKED BY		DATE
AS-BUILTS PREPARED BY		
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		
CAD PREPARATION BY		DATE
MICRO-FILM INFORMATION		
RECORDED BY		DATE
NO.		

BENCH MARKS
N.M.S.H.C. MONUMENT "NM-448-N12"
ELEVATION = 5023.41

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL
ROBERT M. BRAGG NEW MEXICO 9436 REGISTERED PROFESSIONAL ENGINEER
11/5/92

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY: DATE:
DRAWN BY: DATE:
CHECKED BY: DATE:

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: GRADING AND DRAINAGE PLAN
TRACT D-4-K-2 SEVEN BAR RANCH

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIR			WATER		
TRANSPORTATION			WASTEWATER		
HYDROLOGY					
PARKS & REC					

DRAWING NO.	MAP NO.	SHEET 1 OF 1

CITY OF ALBUQUERQUE
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R# 23 DATE 3-13-02 OF 52

CITY OF ALBUQUERQUE
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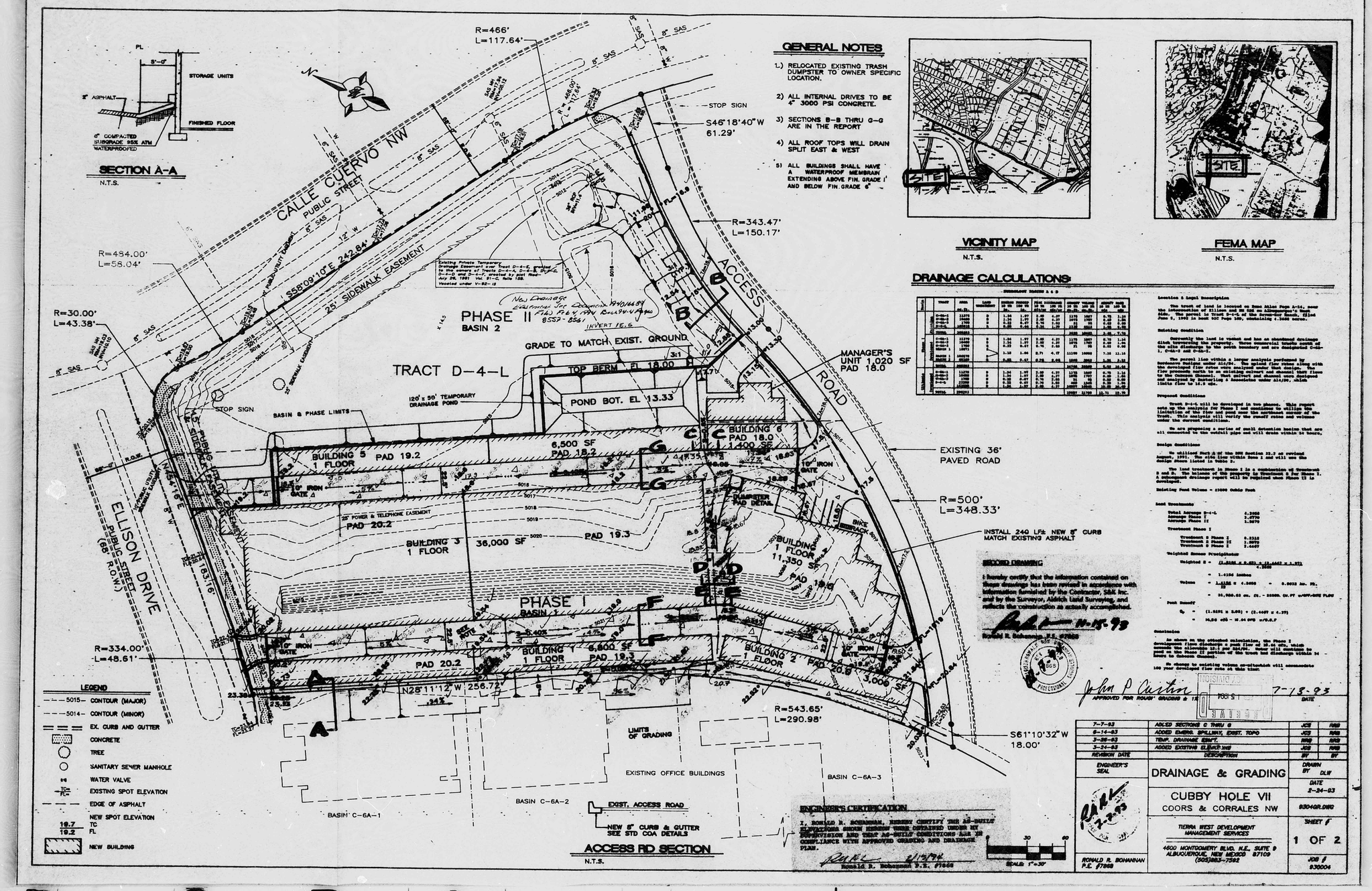
DIRECTOR

NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
NOTARY PUBLIC
STATE OF NEW MEXICO
07/02/02

D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D



SECTION A-A

N.T.S.

GENERAL NOTES

1.) RELOCATED EXISTING TRASH DUMPSTER TO OWNER SPECIFIC LOCATION.

2) ALL INTERNAL DRIVES TO BE 4" 3000 PSI CONCRETE.

3) SECTIONS B-B THRU G-G ARE IN THE REPORT

4) ALL ROOF TOPS WILL DRAIN SPLIT EAST & WEST

5) ALL BUILDINGS SHALL HAVE A WATERPROOF MEMBRAIN EXTENDING ABOVE FIN. GRADE 1' AND BELOW FIN. GRADE 6"

VICINITY MAP

N.T.S.

FEMA MAP

N.T.S.

DRAINAGE CALCULATIONS

EXISTING CONDITIONS BASIN A & B

Basin	Tract	Area Ac.	Land Treatment	Volume 10 Yr.	Volume 100 Yr.	Peak Discharge 10 Yr.	Peak Discharge 100 Yr.	Runoff Volume 10 Yr.	Runoff Volume 100 Yr.	Runoff Peak 10 Yr.	Runoff Peak 100 Yr.
				Ac.	Ac.	Ac/Ft	Ac/Ft	Ac. Ft.	Ac. Ft.	Cfs	Cfs
Basin A	D-4-L-1	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-2	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-3	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-4	10000	B	0.86	0.86	0.06	0.06	1035	1035	1.06	0.86
	TOTAL	45000						4520	6036	3.46	4.58
Basin B	D-4-L-1	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-2	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-3	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-4	10000	B	0.86	0.86	0.06	0.06	1035	1035	1.06	0.86
	TOTAL	45000						4560	6036	3.43	4.58
Basin 1	TRACT D-4-L	1500									
	TRACT D-4-L	10071		1.38	2.66	0.71	4.77	11190	16002	7.32	11.16
	TOTAL	146129	B	3.35	5.67	0.76	5.04	1035	3042	1.25	3.52
	TOTAL	206263						16745	25080	5.55	15.06
Basin 2	D-4-L-1	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-2	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-3	11570	B	1.34	1.97	0.08	0.27	1175	1667	0.79	1.24
	D-4-L-4	10000	B	0.86	0.86	0.06	0.06	1035	1035	1.06	0.86
	TOTAL	45000		4.88	6.77	0.30	0.87	4560	6036	3.43	4.58
	TOTAL	206263						20287	31120	15.71	19.79

Location & Legal Description

The tract of land is located on Zuni Allen Page A-24, near the intersection of Ellison and US 528 in Albuquerque's West Side. The parcel is Tract D-4-L of the Sergo-Ser Ranch, filed June 6, 1990 in book 90C Page 168, containing 1.3288 acres.

Existing Condition

Currently the land is vacant and has an abandoned drainage ditch traversing the property. Three commercial blocks exist of the adjacent properties to the north boundary and are designated Cnbp-1, C-6A-3 and C-2A-2.

The parcel lies within a larger analysis performed by Bohannan Huston under AIA/DA. The upland flow rates along with the developed flow rates were analyzed under that design. The flow proceeds north to an existing culvert and channel that flows to the Cuervo Channel. Part culvert and channel were designed and designed by Bohannan Huston under AIA/DA, which limits flow to 16.5 cfs.

Proposed Conditions

Tract D-4-L will be developed in two phases. This report sets up the analysis for Phase I and continues to utilize the limitation of the flow and pond used in the analysis for the entire of the Tract. This analysis will verify the runoff rates and volumes under the current conditions.

We are proposing a series of small detention basins that are all connected to the outfall pipe and will drain within 24 hours.

Design Conditions

We utilized Part D of the DPM Section 22.2 as revised August, 1991. The site lies within Zone 1 and will use the design storm listed in Table 2.

The land treatment in Phase I is a combination of Treatment B and D. The treatment in Phase II is a combination of Treatment B and C. A subsequent drainage report will be required when Phase II is developed.

Existing Pond Volume = 23500 Cubic Feet

Land Treatments

Total Acreage D-4-L 4.3050
Acreage Phase I 3.0779
Acreage Phase II 1.3079

Treatment Phase I

Treatment B Phase I 0.3316
Treatment D Phase I 2.7463

Weighted Excess Precipitation

Weighted E = (1.8186 x 0.33) + (2.2463 x 2.77) / 3.0779
= 1.6196 inches

Volume = 1.6196 / 12 x 3.0779 = 0.4003 Ac. Ft.
= 20,926.63 cu. ft. - 23500. Cu. Ft w/DET-DPM FLOW

Peak Runoff

Q_p = (1.5291 x 2.00) + (2.4497 x 4.37)
= 14.06 cfs - 16.44 CFS w/D.E.F

Conclusion

As shown on the attached calculations, the Phase I development flows discharge a peak flow of 16.44 cfs, which exceeds the allowable 12.1 per AIA/DA. Water will continue to pond in the Phase II portion of the tract and discharge within 24 hours to Cuervo Channel.

No change to existing volume or flow which will accommodate 100 year developed flow rate at this time.

RECORD DRAWING
I hereby certify that the information contained on these drawings has been revised in accordance with information furnished by the Contractor, S&K Inc. and by the Surveyor, Aldrich Land Surveying, and reflects the construction as actually accomplished.
11-15-93
Ronald R. Bohannan P.E. #7868

ENGINEER'S CERTIFICATION
I, RONALD R. BOHANNAN, HEREBY CERTIFY THE AS-BUILT ELEVATIONS SHOWN HEREON WERE OBTAINED UNDER MY SUPERVISION AND THEY AS-BUILT CONDITIONS ARE IN COMPLIANCE WITH APPROVED GRADING AND DRAINAGE PLAN.
2/13/94
Ronald R. Bohannan P.E. #7868

John P Curtin 7-13-93
APPROVED FOR ROUGH GRADING & TCP — DATE

REVISION DATE	DESCRIPTION	BY	BY
7-7-93	ADDED SECTIONS C THRU G	JCS	RRB
6-14-93	ADDED EMERG. SPILLWAY, EXIST. TOPO	JCS	RRB
3-26-93	TEMP. DRAINAGE EST.	RRB	RRB
3-24-93	ADDED EXISTING ELEVATIONS	JCS	RRB

ENGINEER'S SEAL — RONALD R. BOHANNAN P.E. #7868

DRAINAGE & GRADING

CUBBY HOLE VII
COORS & CORRALES NW

TIERRA WEST DEVELOPMENT MANAGEMENT SERVICES
4600 MONTGOMERY BLVD. N.E. SUITE 9
ALBUQUERQUE, NEW MEXICO 87109
(505)883-7592

DRAWN BY DLW
DATE 2-24-93
930440R.DWG
SHEET 1 OF 2
JOB # 930004

PLAN SHOT TWICE ONCE ON LIGHT ONCE ON DARK

CITY OF ALBUQUERQUE
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R# 23 DATE 3-13-02 OP. E.P.

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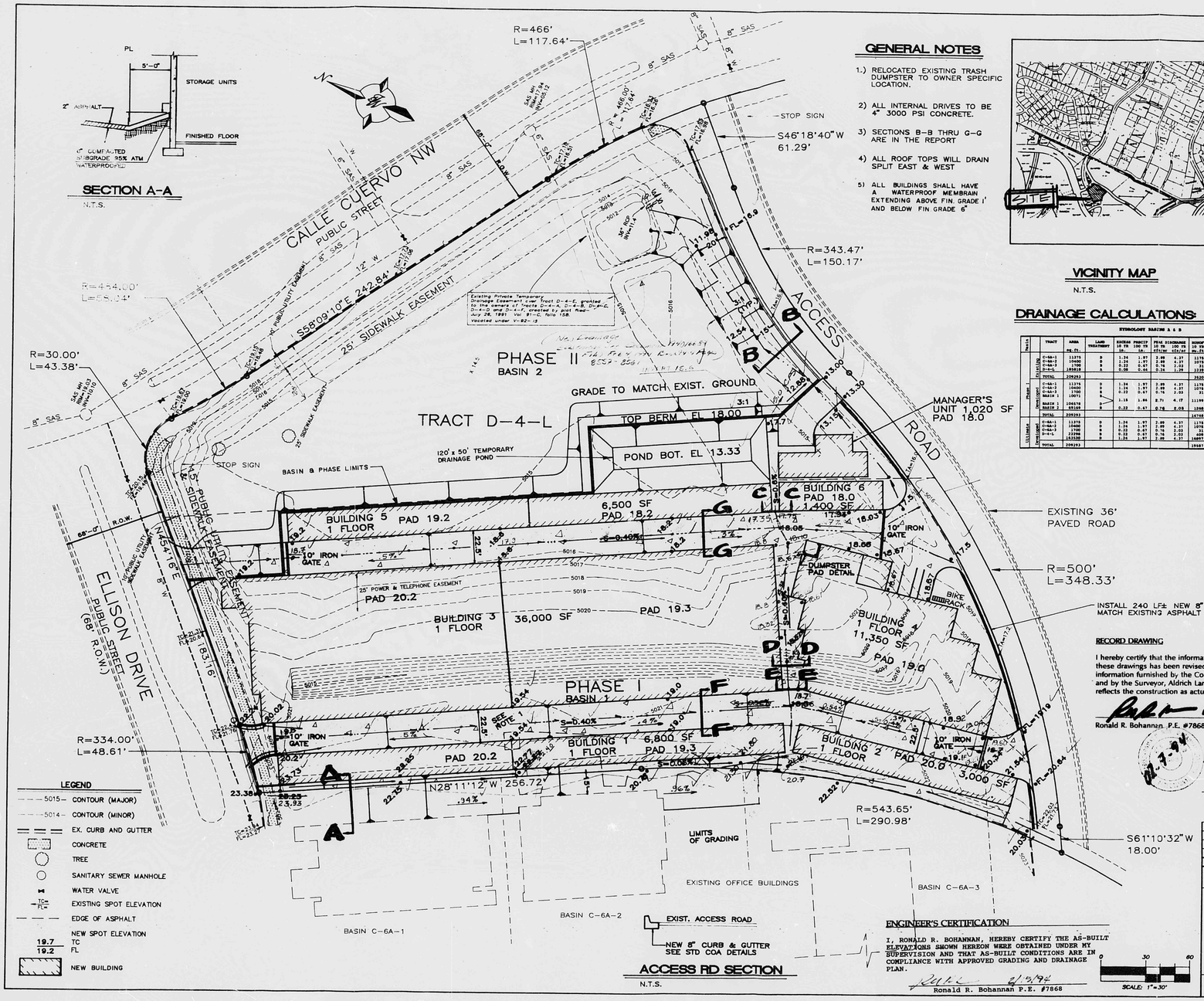
The photographic process used meets the Basic Microfilm Standards of the National Micrographics Association (MS1A-1977)
DIRECTOR
NOTARY PUBLIC
OFFICIAL SEAL
Roberta Duran
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires 07/03/02

D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D



SECTION A-A

N.T.S.

GENERAL NOTES

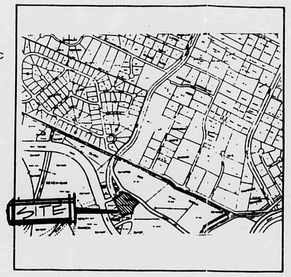
1.) RELOCATED EXISTING TRASH DUMPSTER TO OWNER SPECIFIC LOCATION.

2) ALL INTERNAL DRIVES TO BE 4" 3000 PSI CONCRETE.

3) SECTIONS B-B THRU G-G ARE IN THE REPORT

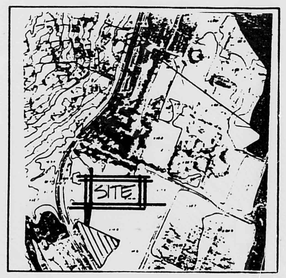
4) ALL ROOF TOPS WILL DRAIN SPLIT EAST & WEST

5) ALL BUILDINGS SHALL HAVE A WATERPROOF MEMBRAIN EXTENDING ABOVE FIN. GRADE 1' AND BELOW FIN GRADE 6"



VICINITY MAP

N.T.S.



FEMA MAP

N.T.S.

DRAINAGE CALCULATIONS

HYDROLOGY BASINS A & B

Basin		TRACT	AREA SQ. FT.	LAND TREATMENT	EXCESS PRECIP 10 YR	EXCESS PRECIP 100 YR	PEAK DISCHARGE 10 YR CFS/AC	PEAK DISCHARGE 100 YR CFS/AC	RUNOFF VOLUME 10 YR CU. FT.	RUNOFF VOLUME 100 YR CU. FT.	RUNOFF RATE 10 YR CFS	RUNOFF RATE 100 YR CFS
Phase I	Existing	C-6A-1	11375	D	1.24	1.97	2.89	4.37	1175	1867	0.78	1.14
		C-6A-2	11375	D	1.24	1.97	2.89	4.37	1175	1867	0.78	1.14
		C-6A-3	1300	B	0.22	0.67	0.16	2.03	21	170	0.00	0.06
		D-4-L	185828	A	0.08	0.46	0.24	1.29	1120	6813	1.02	5.93
		TOTAL	209293						3520	10682	2.82	7.76
	Developed	C-6A-1	11375	D	1.24	1.97	2.89	4.37	1175	1867	0.78	1.14
		C-6A-2	11375	D	1.24	1.97	2.89	4.37	1175	1867	0.78	1.14
		C-6A-3	1300	B	0.22	0.67	0.16	2.03	21	170	0.00	0.06
		D-4-L	10071	B					95		0.00	0.04
		BASIN 1	106578	D	1.18	1.86	2.71	4.17	11199	18058	7.35	11.14
		BASIN 2	68189	B	0.22	0.67	0.78	2.03	1898	3052	1.31	2.22
		TOTAL	209293						15658	25989	9.53	16.64
Phase II	Developed	C-6A-1	11375	D	1.24	1.97	2.89	4.37	1175	1867	0.78	1.14
		C-6A-2	11375	D	1.24	1.97	2.89	4.37	1175	1867	0.78	1.14
		C-6A-3	1300	B	0.22	0.67	0.16	2.03	21	170	0.00	0.06
		D-4-L	23298	B	0.22	0.67	0.16	2.03	409	1245	0.26	1.06
		TOTAL	153548	B	1.24	1.97	2.89	4.37	18857	31595	10.85	16.40
		TOTAL	209293						19857	31759	12.71	19.70

Location & Legal Description

The tract of land is located on Zone Atlas Page A-14, near the intersection of Ellison and NM 528 on Albuquerque's West Side. The parcel is Tract D-4-L of the Sewer-Bar Ranch, filed June 6, 1972 in book XIC Page 109, containing 4.2658 acres.

Existing Condition

Currently the land is vacant and has an abandoned drainage ditch traversing the property. Three commercial tracts south of the site discharge to the south boundary and are designated C-6A-1, C-6A-2 and C-6A-3.

The parcel lies within a larger analysis performed by Bordenave Designs under A16/D4. The upland flow rates along with the developed flow rates were analyzed under that design. The flow proceeds north to an existing culvert and channel that flows to the Cabezon Channel. That culvert and channel were designed and analyzed by Easterling & Associates under A16/D4, which limits flow to 16.5 cfs.

Proposed Conditions

Tract D-4-L will be developed in two phases. This report sets up the analysis for Phase I and continues to utilize the limitation of the flow and pond near the northeast corner of the Tract. This analysis will verify the runoff rates and volumes under the current conditions.

We are proposing a series of small detention basins that are all connected to the outfall pipe and will drain within 24 hours.

Design Conditions

We utilized Part A of the DPM Section 22.2 as revised August, 1991. The site lies within Zone 1 and will use the design Storm listed in Table 2.

The land treatment in Phase I is a combination of Treatment B and D. The balance of the property is Treatment B for Phase I. A subsequent drainage report will be required when Phase II is developed.

Existing Pond Volume = 23800 Cubic Feet

Land Treatments

Total Acreage D-4-L 4.2658
Acreage Phase I: 3.6779
Acreage Phase II: 1.5279

Treatment Phase I

Treatment B Phase I: 0.2313
Treatment B Phase II: 1.5279
Treatment D Phase I: 3.4467

Weighted Excess Precipitator

Weighted E = $\frac{(1.8191 \times 0.67) + (3.4467 \times 1.97)}{3.2658}$

= 1.4156 inches

Volume = $\frac{1.4156}{12} \times 4.2658$ = 0.5033 Ac. Ft.

= 21,928.83 Cu. Ft. - 23800. Cu.Ft w/OFF-SITE FLOW

Peak Runoff

Q_p = (1.8191 x 2.05) + (3.4467 x 4.37)

= 16.98 cfs - 16.64 CFS w/O.S.F

Conclusion

As shown on the attached calculation, the Phase I development will discharge a peak flow of 16.64 cfs, which exceeds the flow limitation of 16.5 cfs per A16/D4. Water will continue to pond on the Phase II portion of the tract and discharge within 24 hours to Cabezon Channel.

No change to existing volume on-site which will accommodate 100 year developed flow rate at this time.

RECORD DRAWING

I hereby certify that the information contained on these drawings has been revised in accordance with information furnished by the Contractor, S&K Inc. and by the Surveyor, Aldrich Land Surveying, and reflects the construction as actually accomplished.

11-15-93

Ronald R. Bohannan P.E. #7868

02-7-94

John P Curtin 7-13-93

APPROVED FOR ROUGH GRADING ± 1% DATE

REVISION DATE	DESCRIPTION	BY	BY
7-7-93	ADDED SECTIONS C THRU G	JCS	RRB
6-14-93	ADDED EMERG. SPILLWAY, EXIST. TOPO	JCS	RRB
3-26-93	TEMP. DRAINAGE ESM'T.	RRB	RRB
3-24-93	ADDED EXISTING ELEVATIONS	JCS	RRB

ENGINEER'S SEAL

RAB 7-7-93

RONALD R. BOHANNAN P.E. #7868

DRAINAGE & GRADING

DRAWN BY DLW

DATE 2-24-93

CUBBY HOLE VII
COORS & CORRALES NW

9304GR.DWG

TIERRA WEST DEVELOPMENT MANAGEMENT SERVICES

4600 MONTGOMERY BLVD. N.E., SUITE 9
ALBUQUERQUE, NEW MEXICO 87109
(505)883-7592

SHEET # 1 OF 2

JOB # 930004

ENGINEER'S CERTIFICATION

I, RONALD R. BOHANNAN, HEREBY CERTIFY THE AS-BUILT ELEVATIONS SHOWN HEREON WERE OBTAINED UNDER MY SUPERVISION AND THAT AS-BUILT CONDITIONS ARE IN COMPLIANCE WITH APPROVED GRADING AND DRAINAGE PLAN.

2/5/94

Ronald R. Bohannan P.E. #7868

ACCESS RD SECTION

N.T.S.

LEGEND

- 5015 — CONTOUR (MAJOR)
- 5014 — CONTOUR (MINOR)
- EX. CURB AND GUTTER
- CONCRETE
- TREE
- SANITARY SEWER MANHOLE
- WATER VALVE
- 19.7 TC / 19.2 FL — EXISTING SPOT ELEVATION
- EDGE OF ASPHALT
- NEW SPOT ELEVATION
- 19.7 TC / 19.2 FL
- NEW BUILDING

PLAN SHOT TWICE
ONCE ON LIGHT
ONCE ON DARK

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

R# 22 DATE 5-13-02 OP

CITY OF ALBUQUERQUE

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DIRECTOR

NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
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07/03/02

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