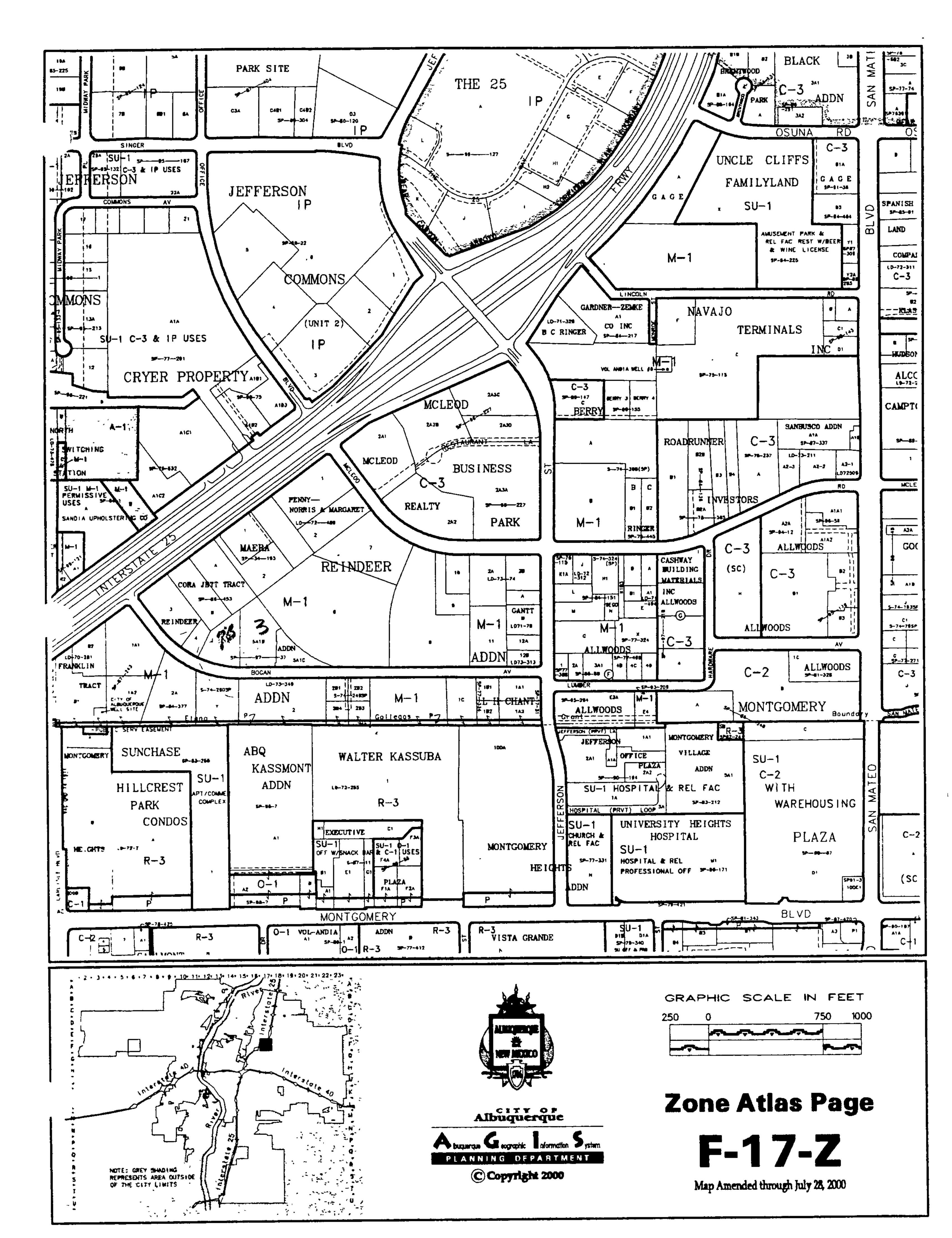
DRAINAGE INFORMATION SHEET

PROJECT TITLE:	Tract 5-A-1-A, Reindeer Addition	ZONE ATLAS/DRN	G. FILE #: F-17 074		
DRB #:	EPC #:	WORK ORDER #:			
LEGAL DESCRIPT	ION: TRACT 5-A-1-A, REINDEER ADD	ITION			
CITY ADDRESS:					
ENGINEERING FIR	RM: Advanced Engineering and Consulting, LLC	CONTACT:	Shahab Biazar		
ADDRESS:	10205 Snowflake Ct. NW Alb., NM 87114	PHONE:	(505) 899-5570		
OWNER:		_ CONTACT:			
ADDRESS:		PHONE:			
ARCHITECT:	MILLER AND ASSOCIATES	_ CONTACT:	JAMES MILLER		
ADDRESS:	2823 RICHMOND DR., NE, ALBUQUERQUE, NM 87107	_ PHONE:	884-1255		
SURVEYOR:		_ CONTACT:			
ADDRESS:		PHONE:	—		
CONTRACTOR:		_ CONTACT:			
ADDRESS:		_ PHONE:			
DRAINAGE PLAN CONCEPTUAL GRADING & DRAINAGE PLAN X GRADING PLAN EROSION CONTROL PLAN		S. DEV. P S. DEV. P S. DEV. P SECTOR	INARY PLAT APPROVAL PLAN FOR SUB'D. APPROVAL PLAN FOR BLDG. PERMIT APPROVAL PLAN APPROVAL LAT APPROVAL		
ENGINEER'S CERTIFICATION X OTHER (SITE PLAN)		FOUNDA	TION PERMIT APPROVAL G PERMIT APPROVAL		
PRE-DESIGN MEET	ING:		CATE OF OCCUPANCY APPROVAL G PERMIT APPROVAL		
YES NO		PAVING	PERMIT APPROVAL		
NO COPY PROVIDED			RAINAGE REPORT GE REQUIREMENTS		
		X SO-19 X OTHER			
DAT	E SUBMITTED: 09 / 04 / 99		SEP 1 6 1999		
	BY:SHAHAB BIAZAR		HYDROLOGY SECTION		





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 2, 2000

Shahab Biazar, P.E.
Advanced Engineering and Consulting
10205 Snowflake Gourt, NW
Albuquerque, N.M. 87114

RE: TRACT 5-A-1-A, REINDEER ADDITION, 3901 Bogan Street NE (E17-D76).

AS-BUILT GRADES (Engineer's Certification) FOR CERTIFICATE OF

OCCUPANCY APPPROVAL. ENGINEER'S STAMP DATED APRIL 21, 2000 AND

LETTER DATED MAY 30, 2000.

Dear Mr. Biazar:

Based on the information provided on your May 30, 2000 submittal, the above referenced project is approved for FINAL Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.

Hydrology

c·

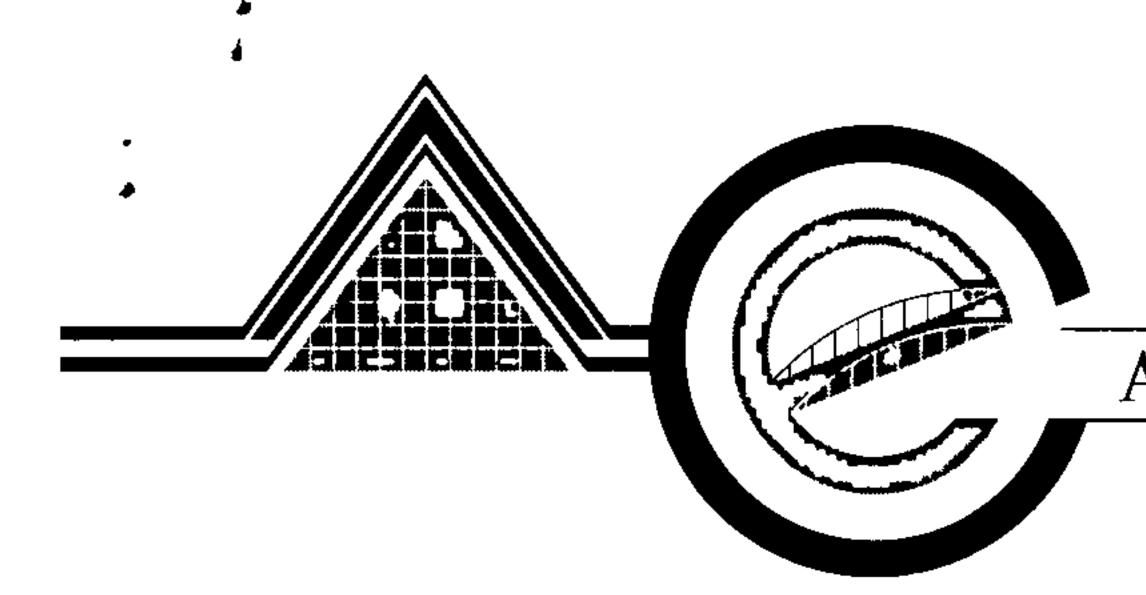
Whitney Reierson

DRAINAGE INFORMATION SHEET

PROJECT TITLE:	Tract 5-A-1-A, Reindeer Addition	ZONE ATLAS/DRNC	F. FILE #: F-17/D76	
DRB #:	EPC #:	WORK ORDER #:		
LEGAL DESCRIPTI	ON: Tract 5-A-1-A, Reindeer Addition			
CITY ADDRESS:	3901 BOGan St., NE	〜 <u> </u>		
ENGINEERING FIR	M: Advanced Engineering and Consulting, LLC	CONTACT:	Shahab Biazar	
ADDRESS:	10205 Snowflake Ct. NW Alb., NM 87114	PHONE:	(505) 899-5570	
OWNER:		CONTACT:		
ADDRESS:		PHONE:		
ARCHITECT:	Miller And Associates	CONTACT:		
ADDRESS:	2833 Richmond Dr., NE Alb. nm 87107	PHONE:	(505) 345-2380	
SURVEYOR:		CONTACT:		
ADDRESS:		PHONE:		
CONTRACTOR:		CONTACT:		
ADDRESS:		PHONE:		
CONCEI GRADIN EROSIO	GE PLAN PTUAL GRADING & DRAINAGE PLAN IG PLAN N CONTROL PLAN ER'S CERTIFICATION	S. DEV. PI S. DEV. PI S. DEV. PI SECTOR I	NARY PLAT APPROVAL LAN FOR SUB'D. APPROVAL LAN FOR BLDG. PERMIT APPROVAL PLAN APPROVAL AT APPROVAL	
X AS-BUILT GRADES		FOUNDATION PERMIT APPROVAL BUILDING PERMIT APPROVAL		
PRE-DESIGN MEET YES NO COPY PI	ING:	GRADING PAVING P S. A. D. DR DRAINAG	EATE OF OCCUPANCY APPROVAL PERMIT_APPROVAL RAINAGE REPORT E REQUIREMENTS RTIFICATE OF OCCUPANCY	
DATE	SUBMITTED: 05/30/00 BY: SHAHAB BIAZAR		国の国の国 WAX 3 0 2000 NOITO3 S 0 2000	

BY:

SHAHAB BIAZAR



ADVANCED ENGINEERING and CONSULTING, LLC

May 30, 2000

Consulting
Design
Development
Management
Inspection

Bradley L. Bingham, PE
City of Albuquerque
Hydrology Department
P. O. Box 1293
Albuquerque, New Mexico 87103

RE: Final Certification for F-17/D76, Tract 5-A-1-A Reindeer Addition

3901 Bogan St., NE

Dear Mr. Bingham:

Enclosed please find one copy of the as-built Grading Plan for Tract 5-A-1-A Reindeer Addition, 3901 Bogan St., NE. We are requesting a Final Certification of Occupancy for the site. The site is paved, and the landscaping is completed. The grades are built according to the grading and drainage plan.

If you have any questions regarding this letter or any other items pertaining to this project, please do not hesitate to contact me.

Sincerely,

Shahab Biazar, P.E.

Enclosure

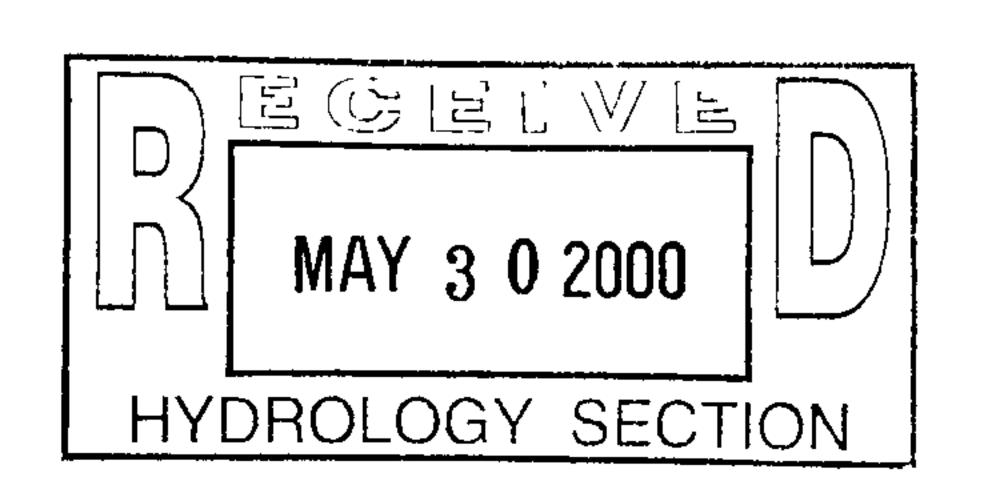
cc:

Larry M. Hill

JN:

9924

sb

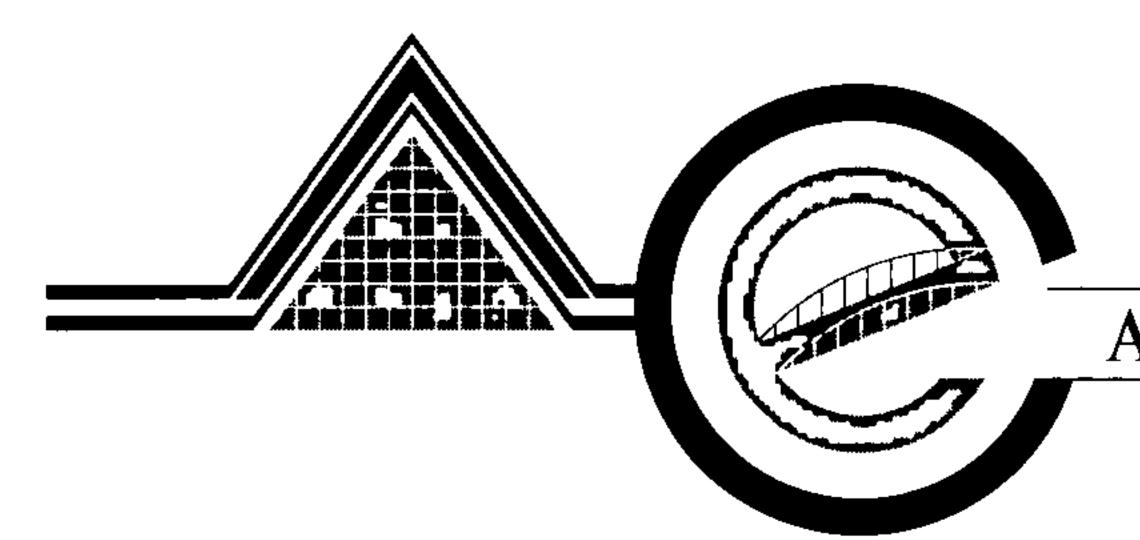


9924-cer wpd

DRAINAGE INFORMATION SHEET

PROJECT TITLE:	Tract 5-A-1-A, Reindeer Addition	ZONE ATLAS/DRNC	G. FILE #: F-17/D76
DRB #:	EPC #:	_ WORK ORDER #:	
LEGAL DESCRIPTI	ON: Tract 5-A-1-A, Reindeer Addition		
CITY ADDRESS:			
ENGINEERING FIR	M: Advanced Engineering and Consulting, LLC	_ CONTACT:	Shahab Biazar
ADDRESS:	10205 Snowflake Ct. NW Alb., NM 87114	PHONE:	(505) 899-5570
OWNER:	······································	CONTACT:	
ADDRESS:		_ PHONE:	
ARCHITECT:	Miller And Associates	CONTACT:	
ADDRESS:	2833 Richmond Dr., NE Alb. nm 87107	PHONE:	(505) 345-2380
SURVEYOR:		CONTACT:	
ADDRESS:		PHONE:	
CONTRACTOR:		CONTACT:	
ADDRESS:	<u> · · · · · · · · · · · · · · · · ·</u>	PHONE:	
DRAINAGE PLAN CONCEPTUAL GRADING & DRAINAGE PLAN X GRADING PLAN EROSION CONTROL PLAN ENGINEER'S CERTIFICATION		S. DEV. P. S. DEV. P. S. DEV. P. SECTOR: FINAL PL	NARY PLAT APPROVAL LAN FOR SUB'D. APPROVAL LAN FOR BLDG. PERMIT APPROVAL PLAN APPROVAL AT APPROVAL
OTHER		X BUILDING	G PERMIT APPROVAL
PRE-DESIGN MEETING: YES NO COPY PROVIDED		X GRADING PAVING I S. A. D. DI	CATE OF OCCUPANCY APPROVAL FERMIT APPROVAL RAINAGE REPORT GE REQUIREMENTS
DAT	E SUBMITTED: 11/16/99 BY: SHAHAB BIAZAR		NOV 1 7 1999 HYDROLOGY SECTION

BY:



ADVANCED ENGINEERING and CONSULTING, LLC

Consulting
Design
Development
Management
Inspection

November 16, 1999

Mr. Bradley L. Bingham, P.E. Hydrology Review Engineer 600 Second Street NW Albuquerque, New Mexico 87102

RE: REVISED GRADING/DRAINAGE PLAN FOR TRACT 5-A-1-A, REINDEER ADDITION, (F17/D76)

Dear Mr. Bingham:

This letter is in response to your comments sent on November 10, 1999 for the above referenced site:

- 1. According to the Architect this layout is the latest changes all the site plan. More details is added to the drainage report in order to clarify the 2.50 cfs contributing flow. The drainage pipe calculations are also revised.
- 2. i) The actual retaining wall design will be done by others during the building permit process, but detail heights and dimensions of the retaining wall are shown on the grading plan.
 - ii) The swale on the cross-sections has been dimensioned.
 - iii) An exhibit is added to the drainage report showing all the areas which will be landscaped. The landscaping will consist of mostly gravel, few trees, low water plants, and bushes.
 - iv) A detail of the outlet is added to the grading plan.
 - v) Additional flow arrows and spot elevation are added along the property line.

Please contact me if there are any questions or concerns regarding this submittal.

Sincerely yours,

PUNCY 17 1999

Shahab Biazar, P.E.

HYDROLOGY STOTION



City of Albuquerque P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103 PUBLIC WORKS DEPARTMENT

November 18, 1999

INTEROFFICE CORRESPONDENCE

HYDROLOGY DIVISION

TO:

Desiderio Salas, Street Maintenance Division

FROM:

Bradley L. Bingham PE, Hydrology Div., PWD

SUBJECT:

PRIVATE DRAINAGE FACILITIES WITHIN PUBLIC RIGHT-OF-WAY

DRAINAGE FILE NUMBER (F17/D76).

Transmitted herewith is a copy of the approved drainage plan for the referenced project incorporating the SO #19 design.

This plan is being submitted to you for permitting and inspection. Please provide this section with a signed-off copy per the signature block upon construction and acceptance by your office.

As you are aware, the signed off SO#19 is required by this office for Certificate of Occupancy release; therefore your expeditious processing of this plan would be greatly appreciated and would avoid any unnecessary delay in the release of Certificate of Occupancy.

Thank you for your cooperation and if you should have any questions and/or comments, please feel free to call me at 924-3986.

Attachment



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 17, 1999

Shahab Biazar PE
Advanced Engineering and Consulting
10205 Snowflake Ct NW
Albuquerque, NM 87114

Re: Tract 5-A-1-A, Reindeer Addition Grading and Drainage Plan

Engineer's Stamp dated 11-16-99 (F17/D76)

Dear Mr. Biazar,

Based upon the information provided in your submittal dated 11-17-99, the above referenced site can be approved for Building Permit and SO19 Permit contingent upon Transportation approval of the TCL. Keep in mind that your grading and drainage plan needs to be identical. If there are major revisions to the site, a resubmittal will be required. I cannot issue a rough grading permit at this time until the TCL has been approved.

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

Sincerely,

Bradley L. Bingham, PE

Hydrology Review Engineer

C: Mike Zamora, Transportation Plans Checker

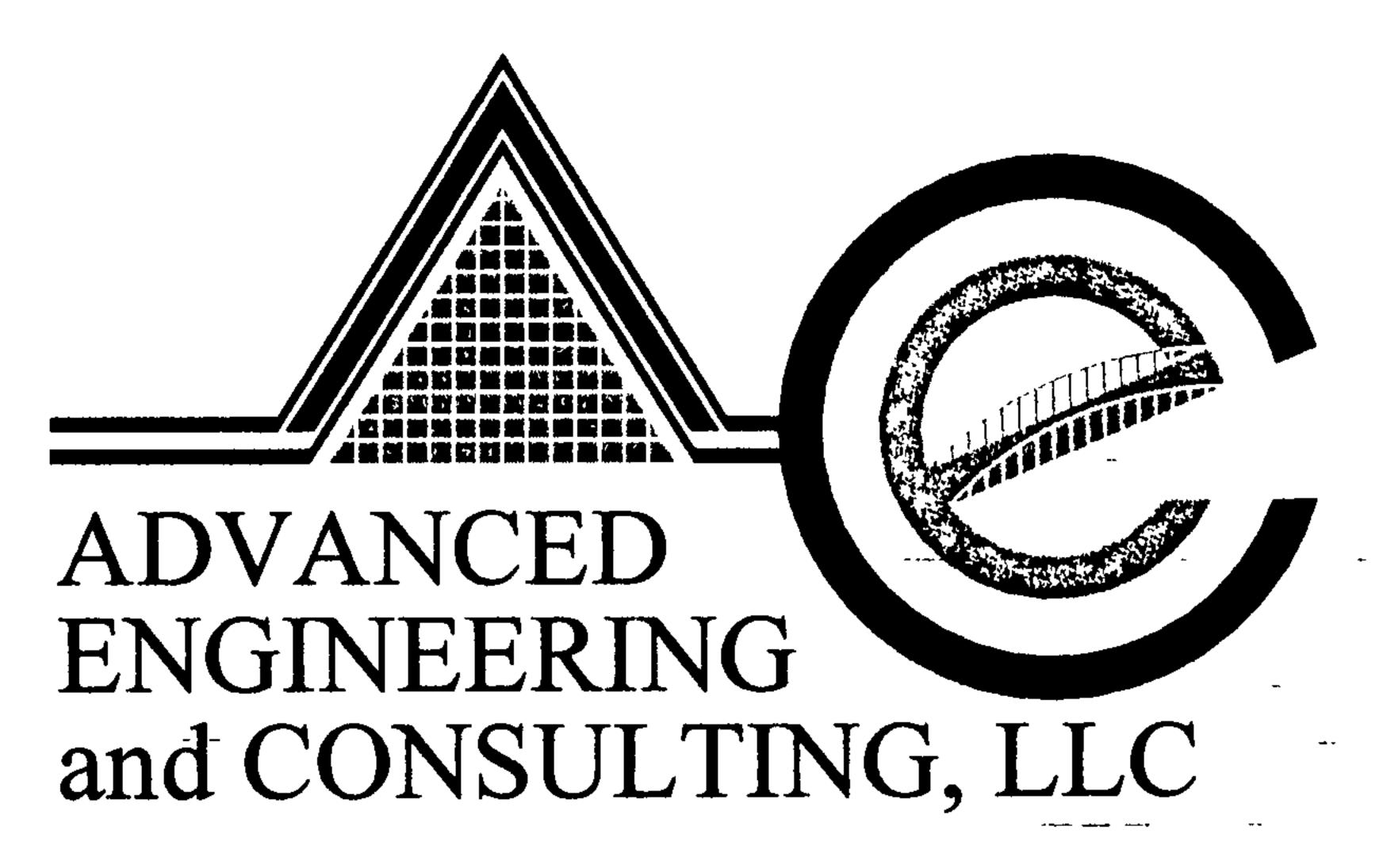
file)

WR

DRAINAGE REPORT -FOR

Tract 5-A-1-A Reindeer Addition

Prepared by:

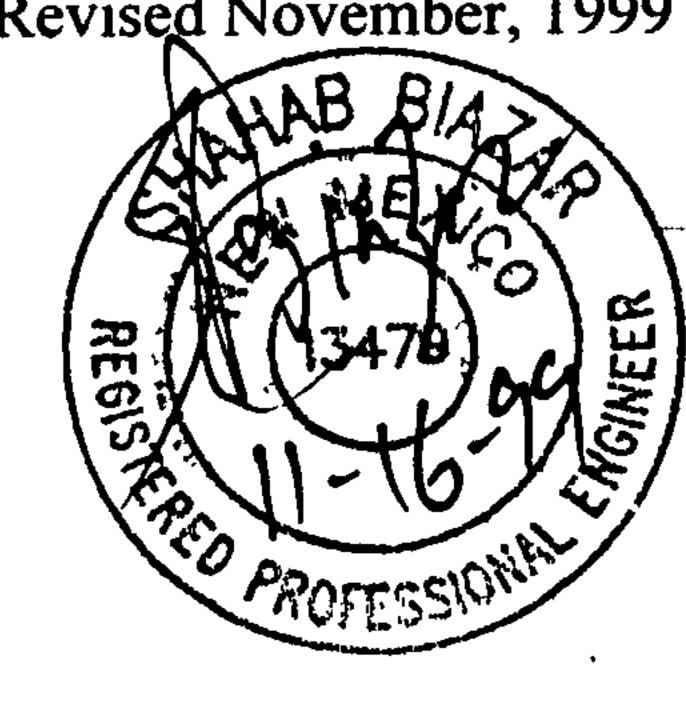


10205 Snowflake Ct. NW Albuquerque, New Mexico 87114

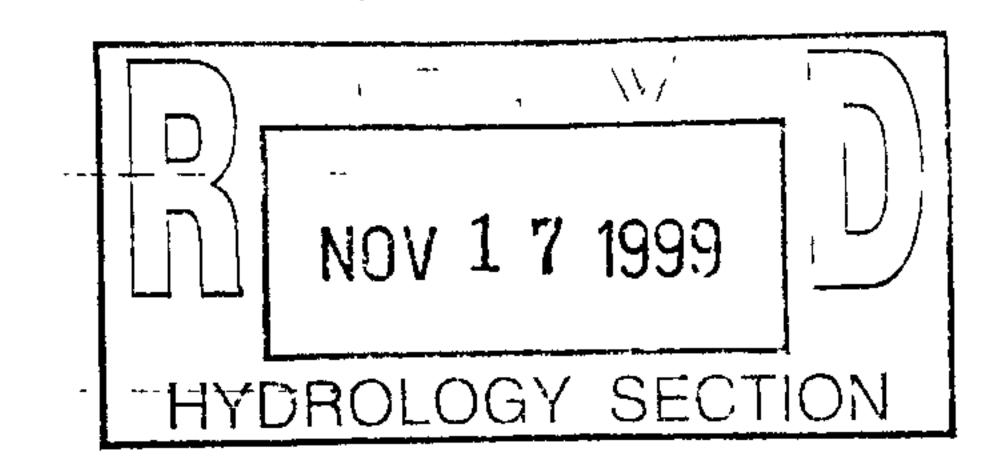
Prepared For:

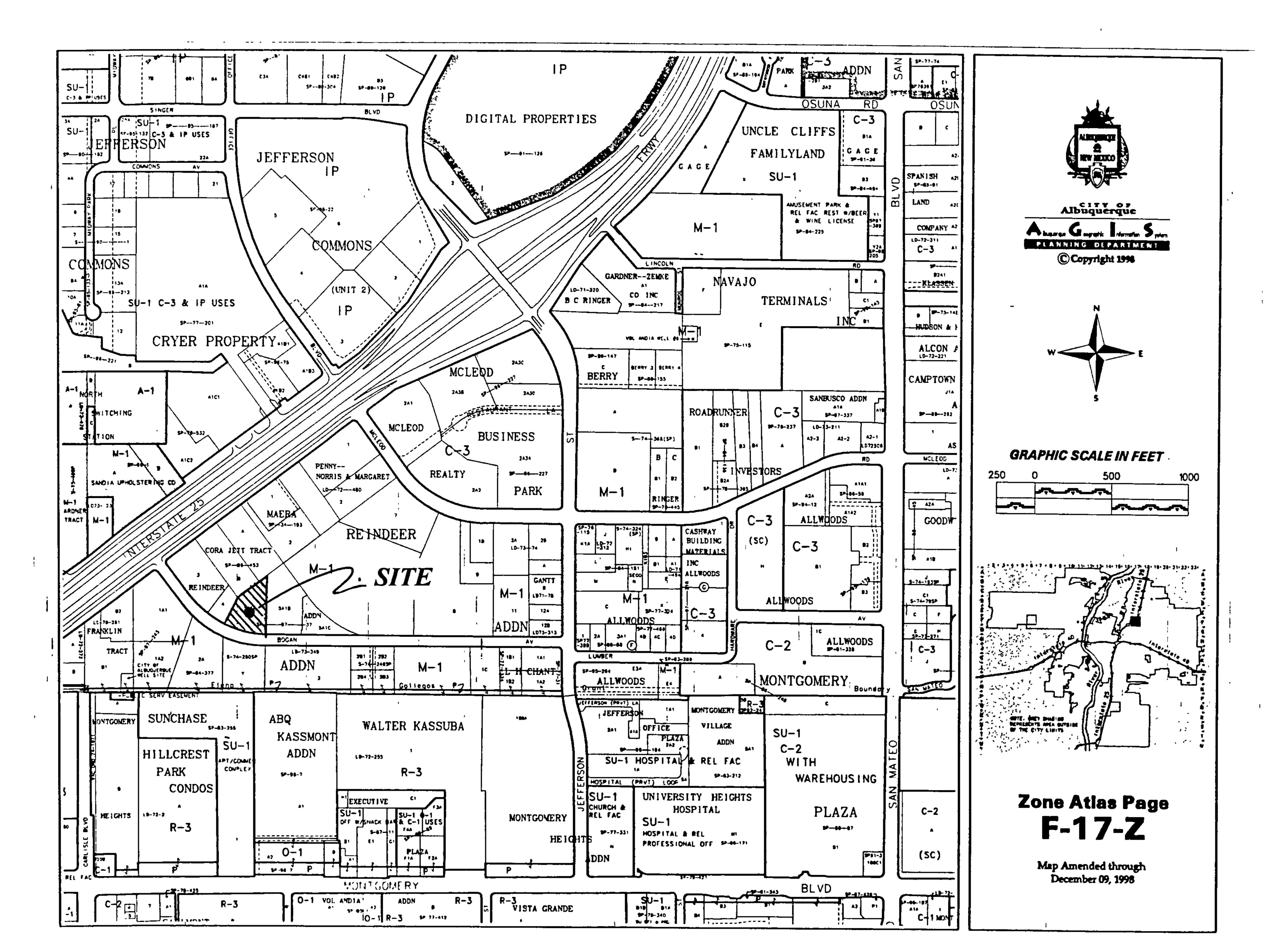
Miller & Associates 2823 Richmond Dr., NE Albuquerque, NM 87107

September, 1999 Revised November, 1999



Shahab Biazar PE NO. 13479





Location

Tract 5-A-1-A, Reindeer Addition is approximately 600' east of I-25 Frontage Road located on the north side of Bogan Avenue. See attached Vicinity Map F-17-Z for the location of the site.

Purpose

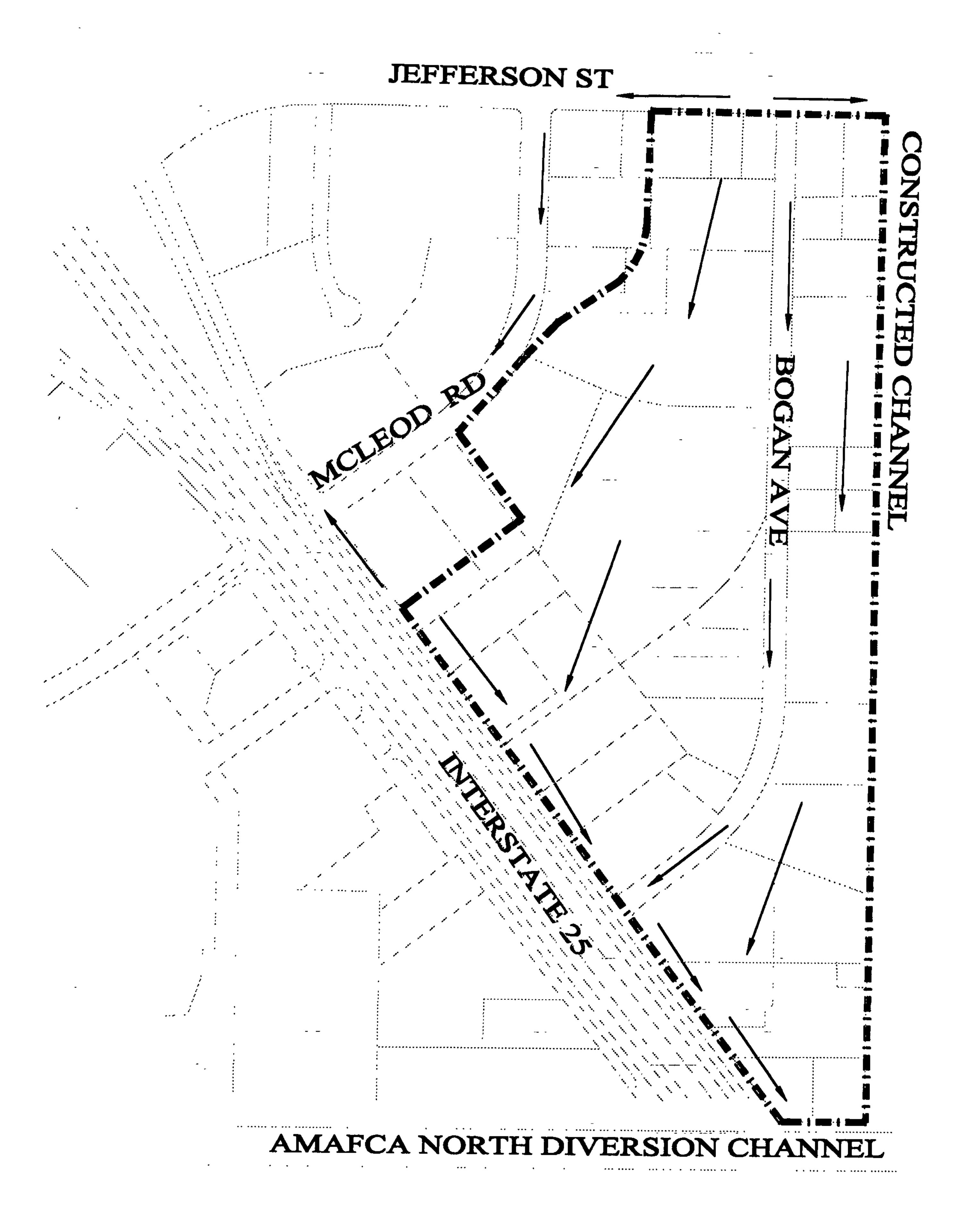
The owners are proposing to build two new buildings on this Tract.

Existing Drainage Conditions

The site falls within an overall drainage basin of ±80 acres. The site under the 100-year, 6-hour storm generates 326.45 cfs. The runoff from the basin drains west to I-25

Frontage Road, and from there the runoff drains south to AMAFCA North Diversion Channel.

Tract 5-A-1-A drains south to Bogan Avenue and then west to the Frontage Road. The site generate a runoff of 2.61 cfs. This Tract has been used over time for storage and contains some existing concrete slabs and gravel base material on site. No offsite runoff enter the site. The runoff to the east and west drain south to Bogan Avenue. The runoff to the north drains west, and the runoff to the south is intercepted by Bogan Avenue.



OVERALL BASIN MAP

Flood Plain

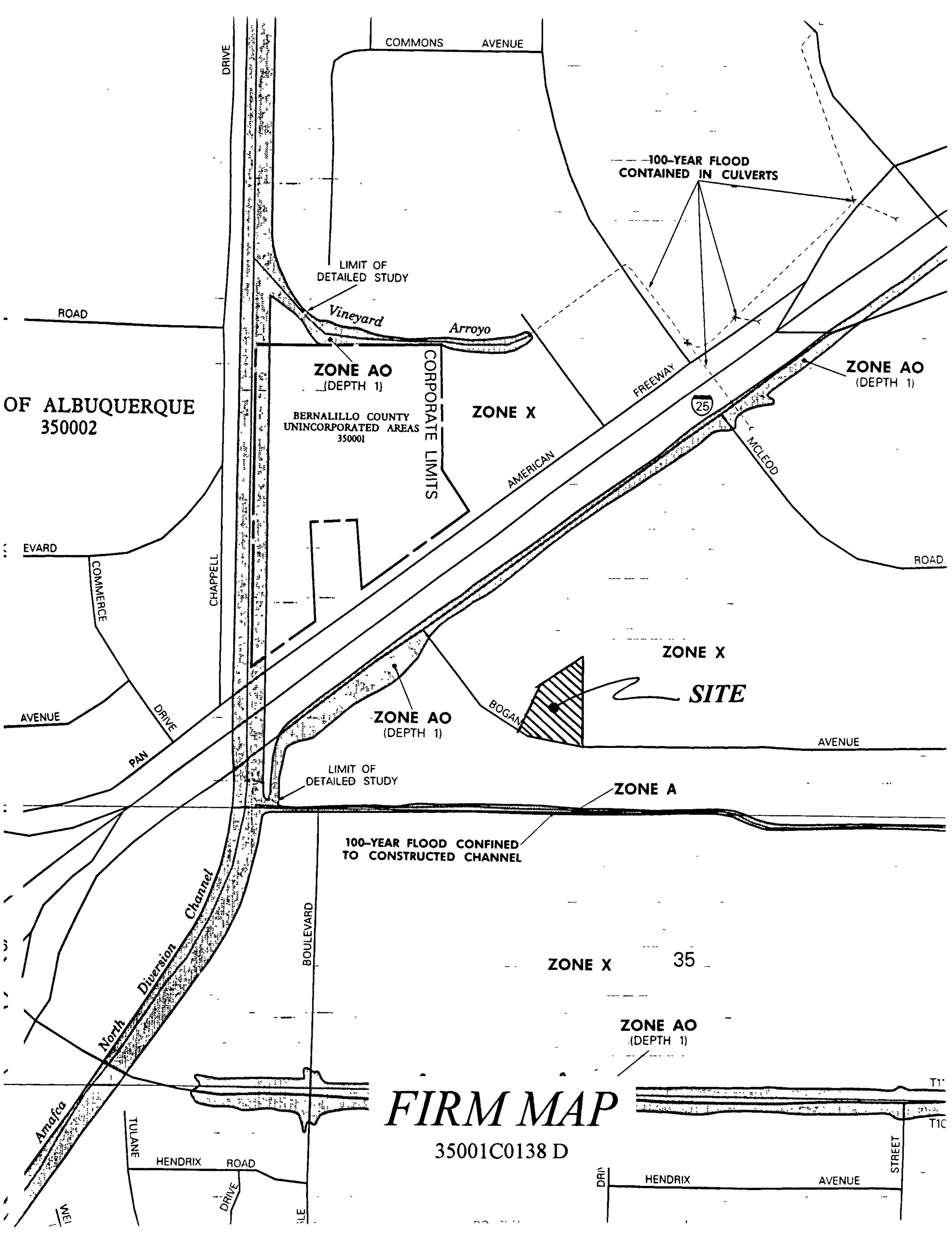
The site falls within FIRM Map No. 35001C 0138 D, as shown on the attached excerpt. The map shows that the site lies within a 500-year flood plain Zone X.

Proposed Conditions and On-Site Drainage Management Plan

The drainage patterns on site will remain the same. The runoff, under a developed runoff of 6.63 cfs will drain south to 2-sidewalk culverts and then to Bogan Avenue. The increase in the runoff is only 4.02 cfs and should not have any impact on the downstream storm structure capacity. The overall runoff will increase from 326.45 to 330.47 cfs (only 1% increase in the runoff).

Calculations

City of Albuquerque, Development Process Manuel, Section 22.2, Hydrology Section, revised January 1993, was used for runoff calculations. See this report for Summary Table for runoff results. See also this report for AHYMO input and output files for runoff and ponding calculations.



RUNOFF CALCULATIONS

The site is @ Zone 2

DEPTH (INCHES) @ 100-YEAR STORM

 $P_{60} = 2.01$ inches

 $P_{360} = 2.35 \text{ inches}$

 $P_{1440} = 2.75 \text{ inches}$

DEPTH (INCHES) @ 10-YEAR STORM

 $P_{60} = 2.01 \times 0.667$ = 1.34 inches

 $P_{360} = 1.57$

 $P_{1440} = 1.83$

See the summary output from AHYMO calculations.

Also see the following summary tables.

RUNOFF CALCULATION RESULTS

EXISTING

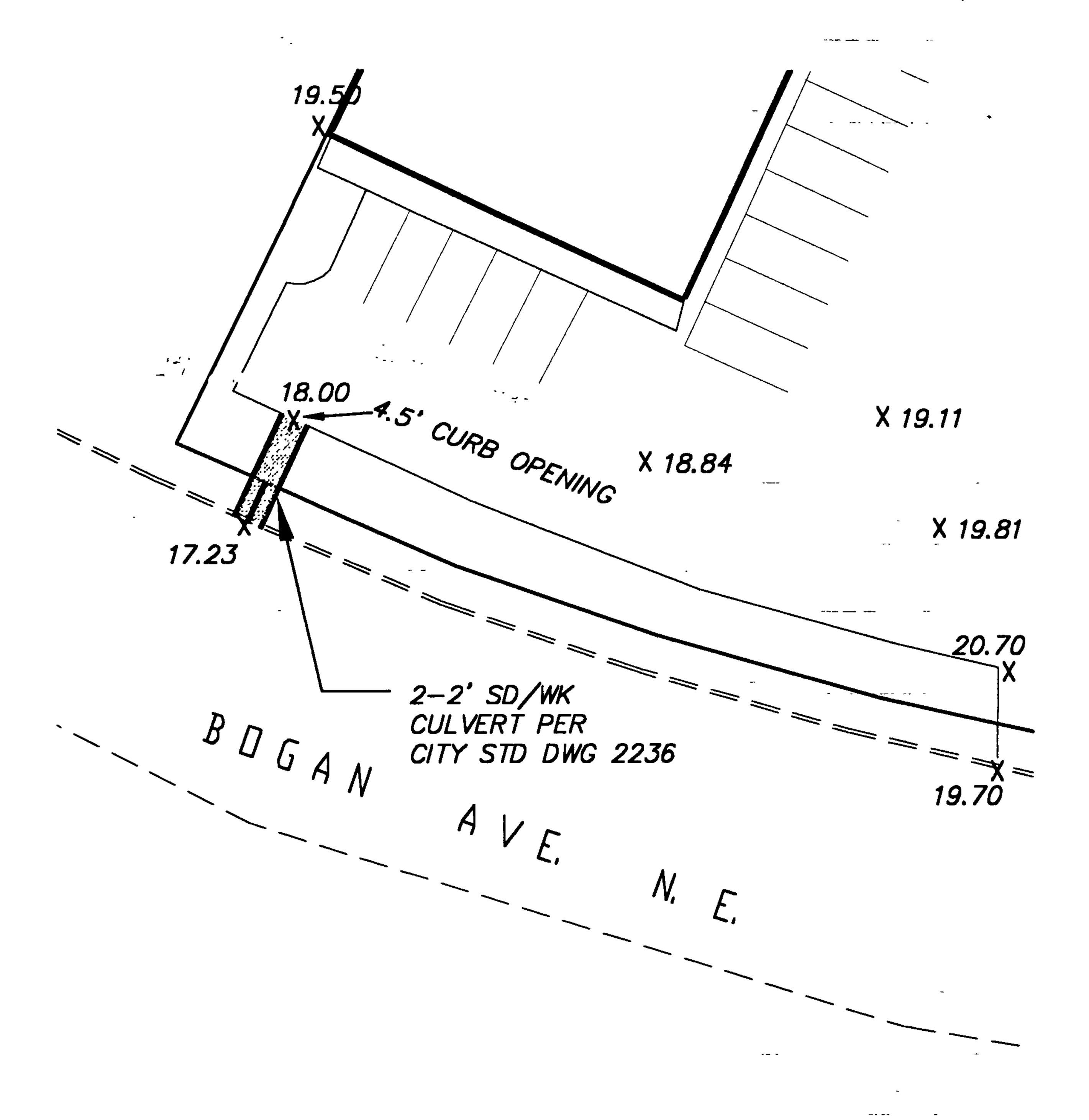
BASIN	AREA (SF)	AREA (AC)	AREA (MI²)
OVERALL	3,471,357.21	79.6914	0.124518
ON-SITE	66,493.15	1.5265	0.002385

EXISTING

BASIN	Q-100	Q-10
· · · · · · · · · · · · · · · · · · ·	CFS	CFS
OVERALL	326.45	200.73
ON-SITE	2.61	0.70

PROPOSED

BASIN	Q-100	Q-10		
	CFS	CFS		
ON-SITE	6.63	4.25		



2-2' SD/WK Culvert Drainage Capacity Calculations Using Orifice Equation

Orifice Equation: Q=CA\(^1\)2gh

Q = ? cfs (maximum runoff)

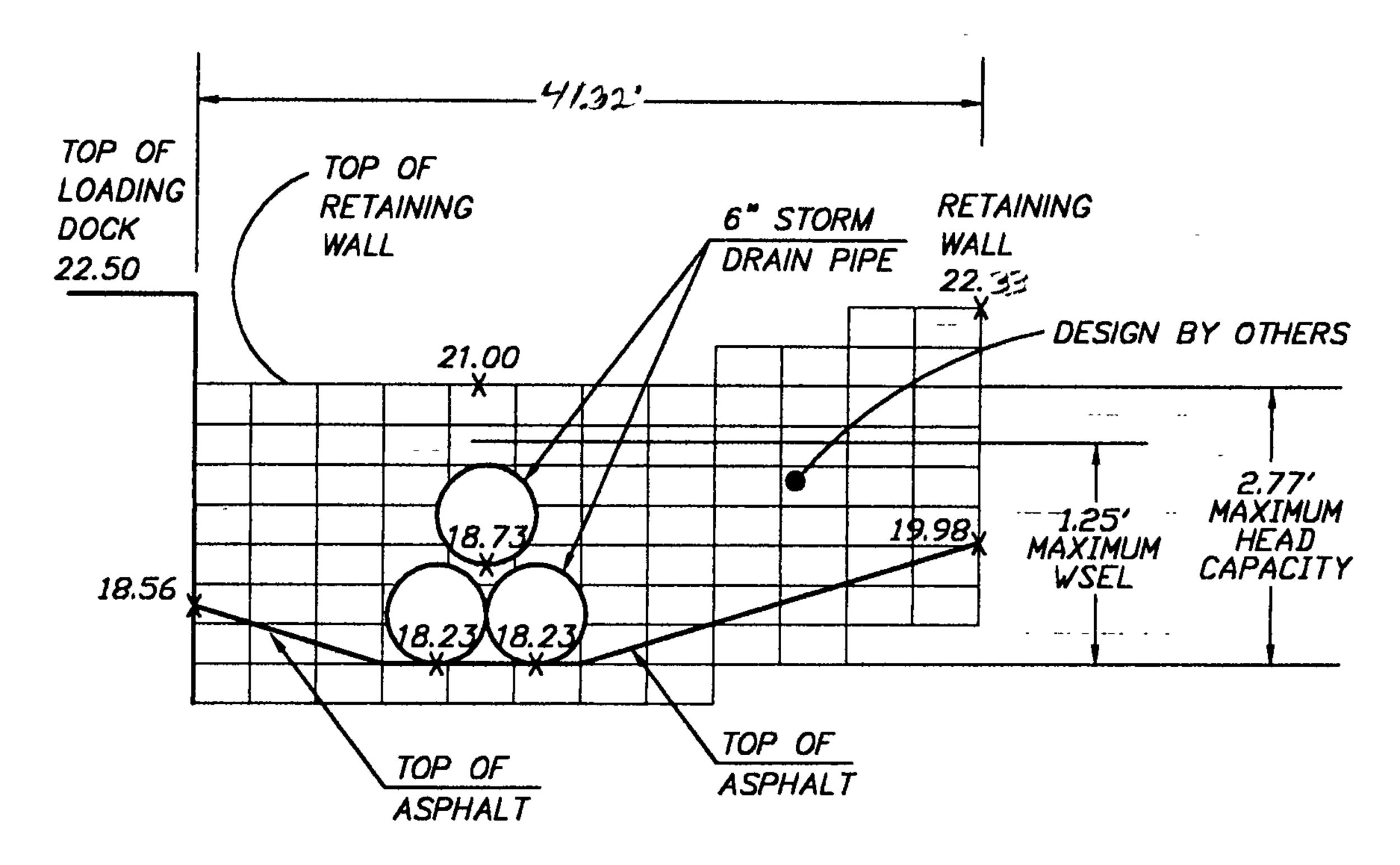
C = 0.60

A = 2.00 sf (for the drainage opening)

g = 32.20

h = 0.50' (at the curb opening)

Q = $0.60 \times 2.00 \times \sqrt{(2 \times 32.2 \times 0.50)}$ = 6.81 cfs > 6.63 cfs (total contributing flow) OK



SECTION E-E

NTS

3-6" Storm Drain Pipe Equation

Orifice Equation: Q=CA\(^2\)2gh

Q = ? cfs (maximum runoff)

C = 0.60

A = 0.196 sf for each pipe

g = 32.20

Pipe A & B:
$$Q = 0.60 \times 0.196 \times \sqrt{(2 \times 32.2 \times 1.25)}$$
 = 1.06 cfs per pipe

Total flow for pipes A & B = $2 \times 1.06 = 2.12$ cfs

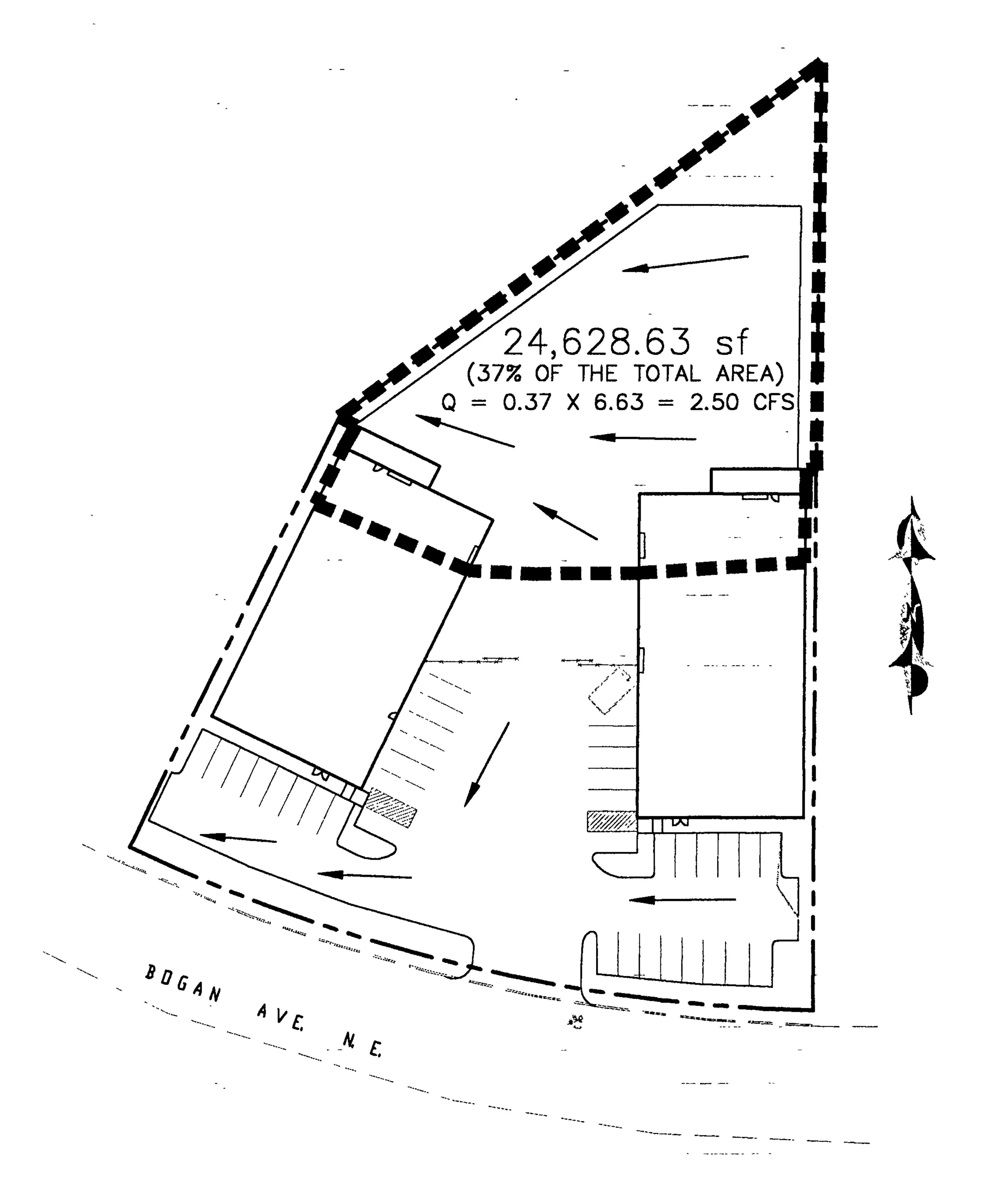
Pipe C:
$$Q = 0.60 \times 0.196 \times \sqrt{(2 \times 32.2 \times 0.75)}$$

= 0.82 cfs per pipe

Total flow for pipes A, B & C = 2.12 + 0.82 = 2.94 cfs > 2.50 cfs (total contributing flow) OK

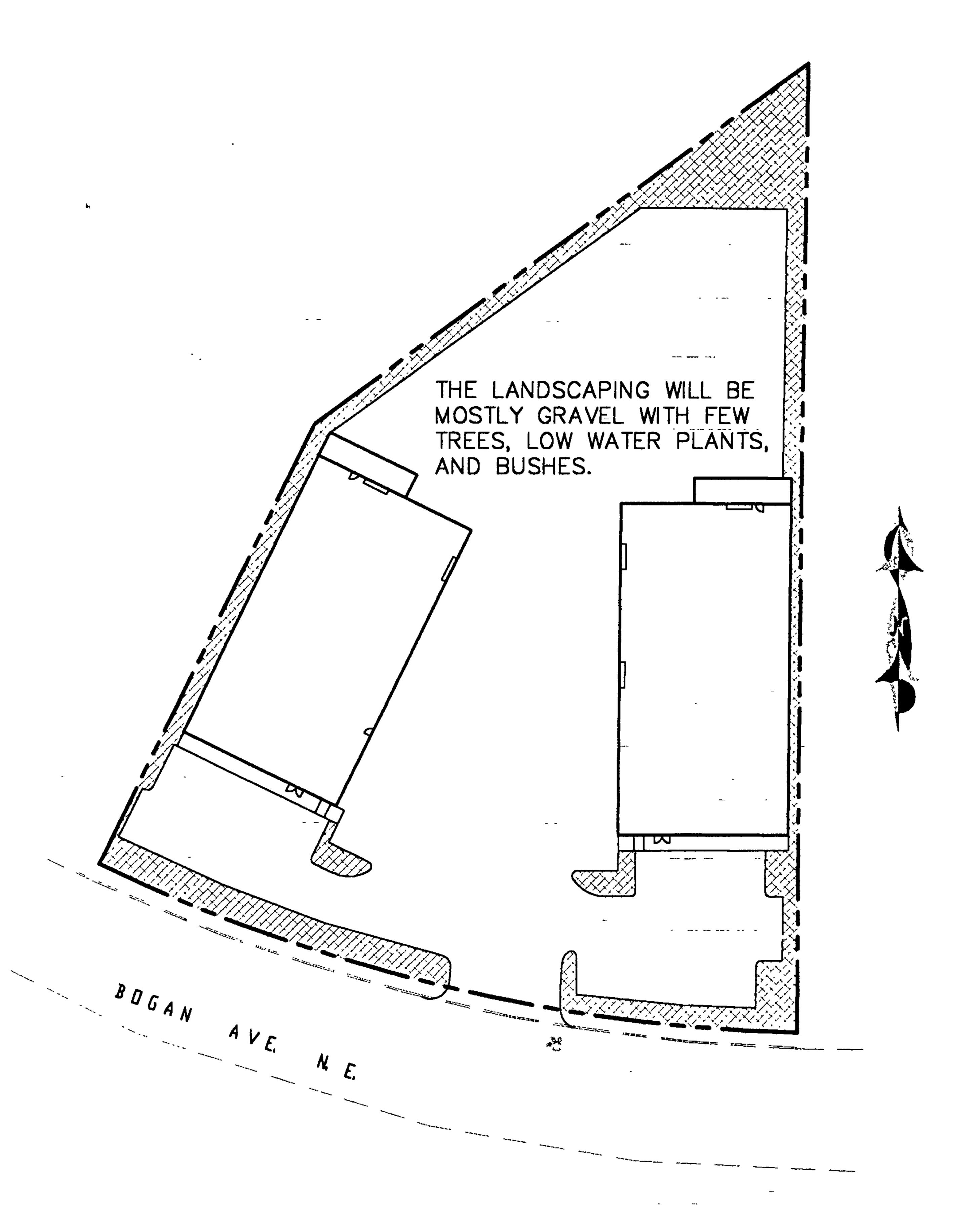
2.50 cfs is based on the total area which drains to this site pipe. See the following exhibit for the contributing area.

The runoff can back up at the pipe to a 2.77' depth, therefore creating a higher head and more drainage capacity through the pipes. We were are using a depth of 1.25' to show the approximate maximum water surface elevation.



CONTRIBUTING BASIN

(FOR 3-6" PIPES)



LANDSCAPED AREAS

```
* ZONE 2
         100-YEAR, 6-HR STORM (UNDER EXISITING CONDITIONS)
START
                    TIME=0.0
RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                    RAIN DAY=2.75 IN DT=0.03333 HR
* OVERALL
                    ID=1 HYD NO=101.0 AREA=0.124518 SQ MI
COMPUTE NM HYD
                    PER A=0.00 PER B=15.00 PER C=15.00 PER D=70.00
                    TP=0.1333 HR MASS RAINFALL=-1
* ON-SITE
COMPUTE NM HYD
                   ID=1 HYD NO=102.0 AREA=0.002385 SQ MI
                    PER A=0.00 PER B=15.00 PER C=75.00 PER D=10.00
                    TP=0.1333 HR MASS RAINFALL=-1
          10-YEAR, 6-HR STORM (UNDER EXISTING CONDITIONS)
START
                    TIME=0.0
RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=1.34 IN RAIN SIX=1.57 IN
                    RAIN DAY=1.83 IN DT=0.03333 HR
* OFFSITE
                    ID=1 HYD NO=111.0 AREA=0.124518 SQ MI
COMPUTE NM HYD
                    PER A=0.00 PER B=15.00 PER C=15.00 PER D=70.00
                    TP=0.1333 HR MASS RAINFALL=-1
* ON-SITE
COMPUTE NM HYD
                  ID=1 HYD NO=112.0 AREA=0.002385 SQ MI
                    PER A=0.00 PER B=15.00 PER C=75.00 PER D=10.00
                    TP=0.1333 HR MASS RAINFALL=-1
         100-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)
START
                    TIME=0.0
RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                    RAIN DAY=2.75 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD
                   ID=2 HYD NO=102.1 AREA=0.002385 SQ MI
                    PER A=0.00 PER B=15.00 PER C=0.00 PER D=85.00
                    TP=0.1333 HR MASS RAINFALL=-1
         10-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)
START
                    TIME=0.0
RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 IN
```

RAIN ONE=1.34 IN RAIN SIX=1.57 IN

RAIN DAY=1.83 IN DT=0.03333 HR

* ON-SITE

COMPUTE NM HYD

ID=1 HYD NO=112.1 AREA=0.002385 SQ MI

PER A=0.00 PER B=15.00 PER C=0.00 PER D=85.00

TP=0.1333 HR MASS RAINFALL=-1

FINISH

•

- **-**---

_

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =	
START										TIME=	.00
RAINFALL T	YPE= 1									RAIN6=	2.350
COMPUTE NM I	HYD 101.00	-	1	.12452	326.45	11.700 -	1.76175	1.500	4.096	PER IMP=	
COMPUTE NM I	102.00	-	1	.00239	4.84	. 148	1.16526	1.500		PER IMP=	10.00
START								_		TIME=	.00
RAINFALL TY	PE= 1									RAIN6=	1.570
COMPUTE NM I	111.00	-	1	.12452	200.73	6.977	1.05068	1.500	2.519	PER IMP=	70.00
COMPUTE NM H	112.00	-	1	.00239	2.61	.070	.55021	1.500	1.709	PER IMP=	10.00
START										TIME=	.00
RAINFALL TY	PE= 1									RAIN6=	2.350
COMPUTE NM H	1YD 102.10	-	2	.00239	6.63	.244	1.91479	1.500 -	4.347	PER IMP=	85.00
START								_		TIME=	.00
RAINFALL TY	PE= 1						- -	<u>-</u>		RAIN6=	1.570
COMPUTE NM H	IYD 112.10	-	1	.00239	4.25	. 150	1.17875	1.500	2.782	PER IMP=	85.00

....

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

DRAINAGE INFORMATION SHEET

PROJECT T	ITLE: Tract 5-A-1-A, Reindeer Addition	ZONE ATLAS/DRNO	G. FILE #: F-17/D76		
DRB #:	EPC #:	WORK ORDER #:			
LEGAL DES	CRIPTION: Tract 5-A-1-A, Reindeer Addition				
CITY ADDR	ESS:				
ENGINEERI	NG FIRM: Advanced Engineering and Consulting, LLC	CONTACT:	Shahab Biazar		
ADDRES	SS: 10205 Snowflake Ct. NW Alb., NM 87114	PHONE:	(505) 899-5570		
OWNER:		CONTACT:	<u> </u>		
ADDRES	SS:	PHONE:			
ARCHITECT	T: Miller And Associates	CONTACT:			
ADDRES	SS: <u>2833 Richmond Dr., NE Alb. nm 87107</u>	PHONE:	(505) 345-2380		
SURVEYOR:	• •	CONTACT:			
ADDRES	SS:	PHONE:			
CONTRACT	OR:	CONTACT:			
ADDRES	SS:	PHONE:			
	DRAINAGE PLAN CONCEPTUAL GRADING & DRAINAGE PLAN GRADING PLAN	S. DEV. F	INARY PLAT APPROVAL PLAN FOR SUB'D. APPROVAL PLAN FOR BLDG. PERMIT APPROVAL		
<u> </u>	EROSION CONTROL PLAN	SECTOR PLAN APPROVAL			
	ENGINEER'S CERTIFICATION		LAT APPROVAL		
<u>X</u> A	AS-BUILT GRADES LO		ATION PERMIT APPROVAL		
	Jan 2000		IG PERMIT APPROVAL		
PRE-DESIGN	N MEETING:	CERTIFICATE OF OCCUPANCY APPROVAL GRADING PERMIT APPROVAL			
<u> </u>	YES		PERMIT APPROVAL		
I	NO	S. A. D. DRAINAGE REPORT			
	COPY PROVIDED	DRAINA	GE REQUIREMENTS		
		X TEMPOR	ARY C.O.		
	DATE SUBMITTED: 04/21/00		下。 APR 2 4 2000		

SHAHAB BIAZAR

BY:

HYDROLOGY SECTION



City of Albuquerque P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103 PUBLIC WORKS DEPARTMENT

November 18, 1999

INTEROFFICE CORRESPONDENCE

HYDROLOGY DIVISION

TO:

Desiderio Salas, Street Maintenance Division

FROM:

Bradley L. Bingham PE, Hydrology Div., PWD

SUBJECT:

PRIVATE DRAINAGE FACILITIES WITHIN PUBLIC RIGHT-OF-WAY

DRAINAGE FILE NUMBER (F17/D76).

Transmitted herewith is a copy of the approved drainage plan for the referenced project incorporating the SO #19 design.

This plan is being submitted to you for permitting and inspection. Please provide this section with a signed-off copy per the signature block upon construction and acceptance by your office.

As you are aware, the signed off SO#19 is required by this office for Certificate of Occupancy release; therefore your expeditious processing of this plan would be greatly appreciated and would avoid any unnecessary delay in the release of Certificate of Occupancy.

Thank you for your cooperation and if you should have any questions and/or comments, please feel free to call me at 924-3986.

Attachment