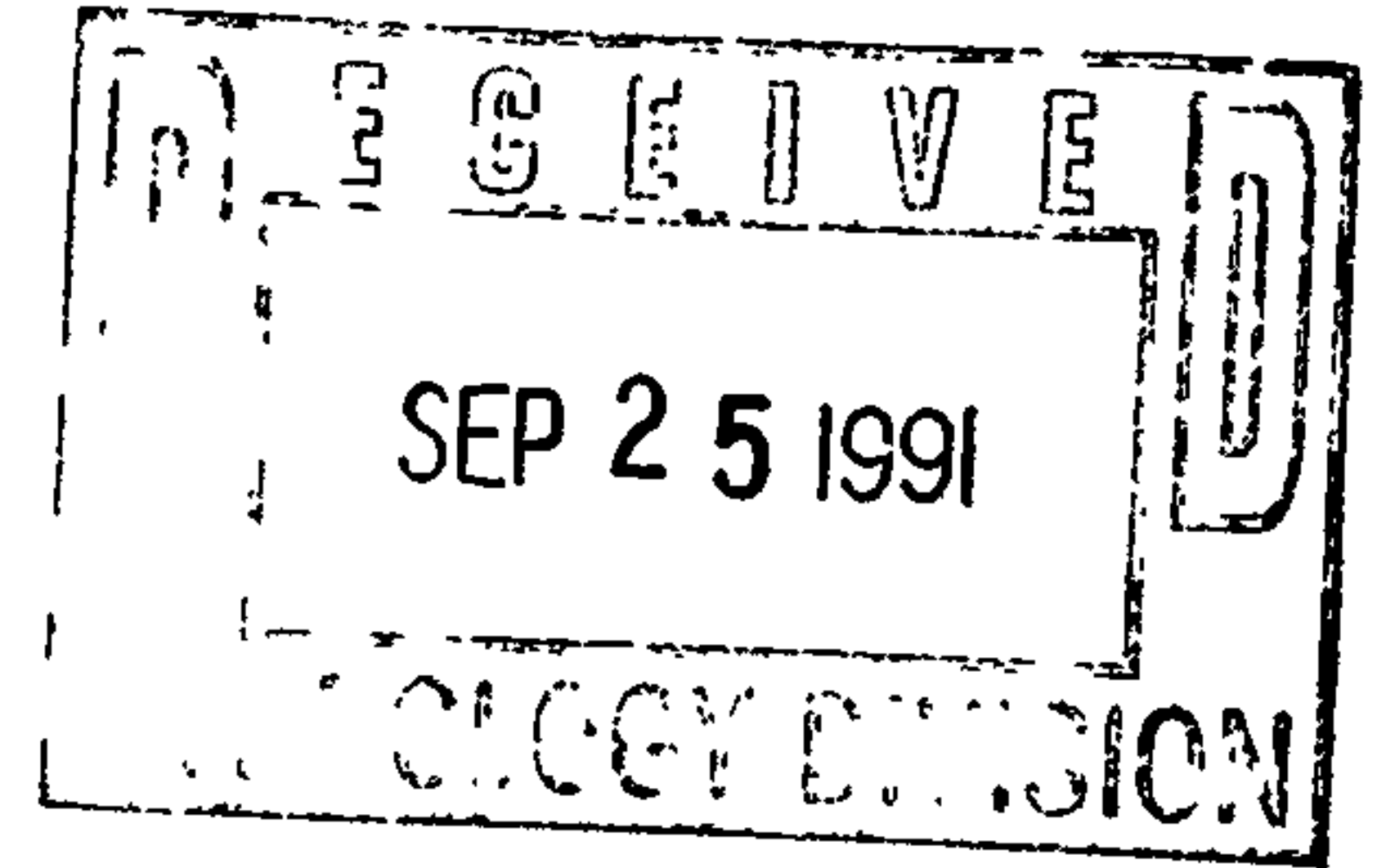


GALLOWAY, ROMERO & ASSOCIATES
CONSULTING ENGINEERS
14202 E. EVANS AVE.
AURORA, COLORADO
(303) 745-7448
FAX: (303) 745-7480



FAX TRANSMITTAL

TO: BERNIE MONTROYA
COMPAN CITY OF ALBUQUERQUE
NEW MEXICO

FROM L. AVE JONES

DATE: 9 24 91

FROM 230 SHAMROCK
TR - \$ FUBANK

ATTACHED INCLUDING 1 - SMS OR 21

CALL THE NUMBER (303) 745-7448

ALL FEDERAL EXTRACTS 3 SEALED
CALL ME YOU HAVE
AND EST'S

THANK YOU

FINAL DRAINAGE REPORT
CENTRAL & EUBANK CORNERSTORE
CENTRAL AVENUE & EUBANK BOULEVARD
CITY OF ALBUQUERQUE, NEW MEXICO
SEPTEMBER, 1991

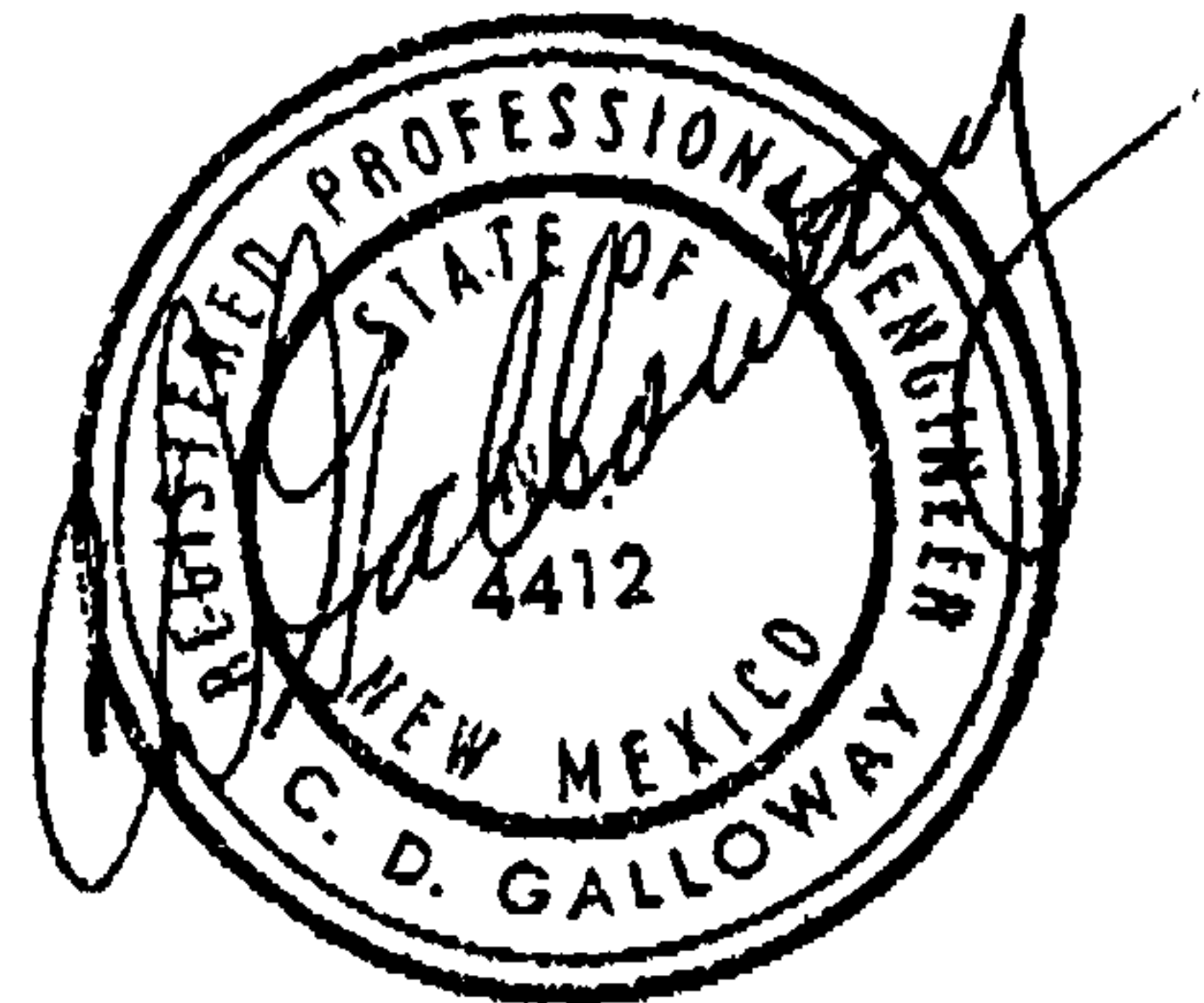
REVISED SEPTEMBER 24, 1991

Prepared For:

Diamond Shamrock Inc.
9702 Brockbank
Dallas, TX 75220
(214) 357-7386
Attn: Jim Reed

Prepared By:

Galloway, Romero and Associates, Inc.
14202 E. Evans Ave.
Aurora, CO 80014
(303) 745-7448
Attn: Larry L. Parker



9/24/91

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Grading and Developed Drainage Plan	of this report

Introduction

This report is being prepared for Diamond Shamrock Inc., the developer of the site, to fulfill the drainage requirements of Albuquerque, New Mexico. The report analyzes offsite and onsite runoff from the minor (10 year frequency) and major (100 year frequency) storms and routes these flows through the site.

The 0.9183 acre site is part of the northeast 1/4 of Section 29, Township 10 North, Range 4 East of the New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico. The site is bounded by Eubank Boulevard N.E. on the East, by Central Avenue N.E. on the South, by Glorieta Street N.E. on the West and by vacant C-2 zoned property to the north. The site is currently platted and is a portion of Lot G, Block 8 of Buena Ventura. With the development, the site will be replatted and known as Lot G-2, Block 8 of Buena Ventura.

Currently three buildings, block and wood frame, occupy the southeasterly corner of the site. Large asphalt and concrete paved areas are immediately adjacent to the buildings. With the exception of isolated paved areas, the remainder of the site is covered with gravel paving. The site slopes downward from southeast to northwest at slopes ranging from 4 to 1 percent.

Design Criteria

This report was prepared using criteria as outlined in the City of Albuquerque's Development Process Manual, Chapter 22, "Drainage, Flood Control and Erosion Control."

Runoff for the minor and major storms, 10 and 100 year frequency, respectively, was calculated using the rational method. Times of concentration, upland method, was calculated for the individual basins. Because the hydraulic lengths are short, all times were small and a minimum time of 10 minutes was used. Rainfall intensity values were taken from the 6-hour/100 year frequency chart and were adjusted by the appropriate factors for storm reduction and dimensionless rainfall.

Runoff calculations and applicable charts and graphs are included in the appendix of this report.

Existing Drainage

The existing site is divided into four drainage basins, A through D. Basin A is a 0.051 acre basin, at the easterly portion of the site, that primarily consists of rooftop, asphalt and concrete paved areas. The 10 and 100 year runoff of 0.16 and 0.24 cfs, respectively, is largely unconcentrated and exits the site along the easterly property line, flowing into Eubank Boulevard.

Basin B is a 0.087 acre basin, along the southerly portion of the site, that consists of rooftop, asphalt, concrete and gravel paved areas. The 10 and 100 year runoff of 0.25 and 0.38 cfs, respectively, is largely unconcentrated and exits the site along the southerly property line, flowing into Central Avenue.

Basin C is a 0.479 acre basin that consists of rooftop, asphalt and gravel paved areas. The uppermost reach of the basin begins at the existing structures at the easterly side of the site. The 10 and 100 year runoff of 0.62 and 0.95 cfs, respectively, is largely unconcentrated and exits the site along the westerly property line, flowing into Glorieta Street.

Basin D is a 0.310 acre basin, along the northerly portion of the site, that consists of rooftop, asphalt, concrete and gravel paved areas. The 10 and 100 year runoff of 0.39 and 0.60 cfs, respectively, is largely unconcentrated and exits the site along the northerly property line.

Developed Drainage

General Concept

One foot high water blocks have been provided along all street frontages per the City of Albuquerque's requirements. The high point of the developed site is the finished floor of the convenience store. The majority of the sites runoff freely discharging onto the adjacent site to the north has been reduced.

Specific Details

The site is divided into four drainage basins, A through D. Basin A is a 0.389 acre basin, along the westerly portion of the site, that consists of canopy rooftop, carwash rooftop, concrete paved and landscaped areas. The 10 and 100 year runoff is 1.07 and 1.63 cfs, respectively. Developed flow from the rooftop and paved areas exits the site through the Glorieta Street curb cut. Landscaped areas in basin A sheetflow westerly across the landscaped area to the Glorieta Street gutter.

Basin B is a 0.052 acre basin, along the northerly portion of the site, that consists of landscaped areas. The 10 and 100 year runoff of 0.07 and 0.10 cfs, respectively, is unconcentrated and sheetflows off the site along the northerly property line.

Basin C is a 0.276 acre basin, along the southerly portion of the site, that consists of canopy rooftop, concrete paving and landscaped areas. The 10 and 100 year runoff is 0.64 and 0.98 cfs, respectively. Developed flow from the rooftop and paved areas exits the site through the Central Avenue curb cuts. Landscaped areas in basin C sheetflow southerly across the landscaped area to the Central Avenue gutter.

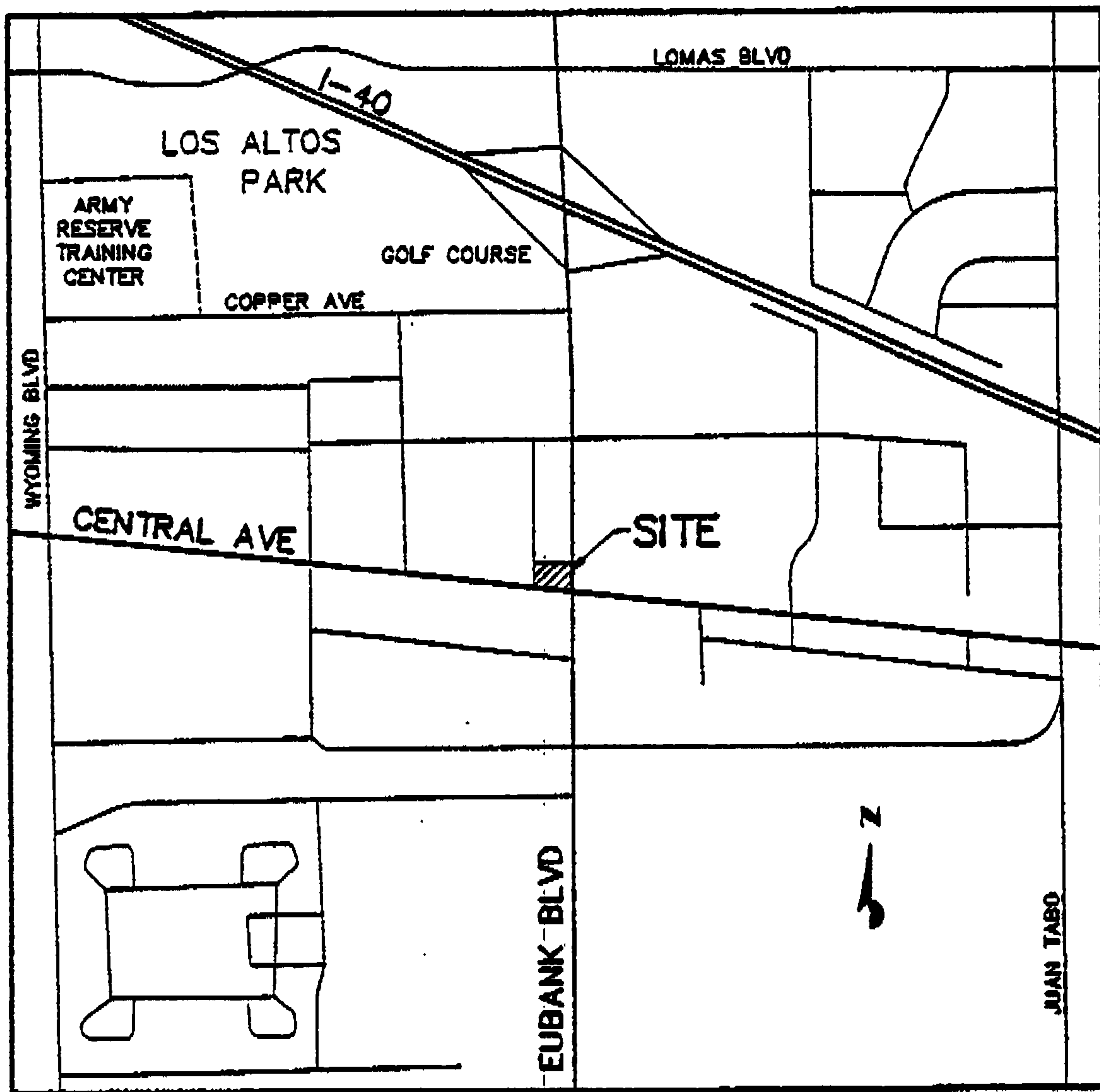
Basin D is a 0.201 acre basin, at the northeasterly corner of the site, that consists of canopy rooftop, convenience store rooftop, concrete paving and landscaped areas. The 10 and 100 year runoff is 0.49 and 0.75 cfs, respectively. Developed flow from the rooftop and paved areas exit the site through the Eubank Boulevard curb cut. Landscaped areas in basin D sheetflow easterly across the landscaped area to the Eubank Boulevard gutter.

Conclusions

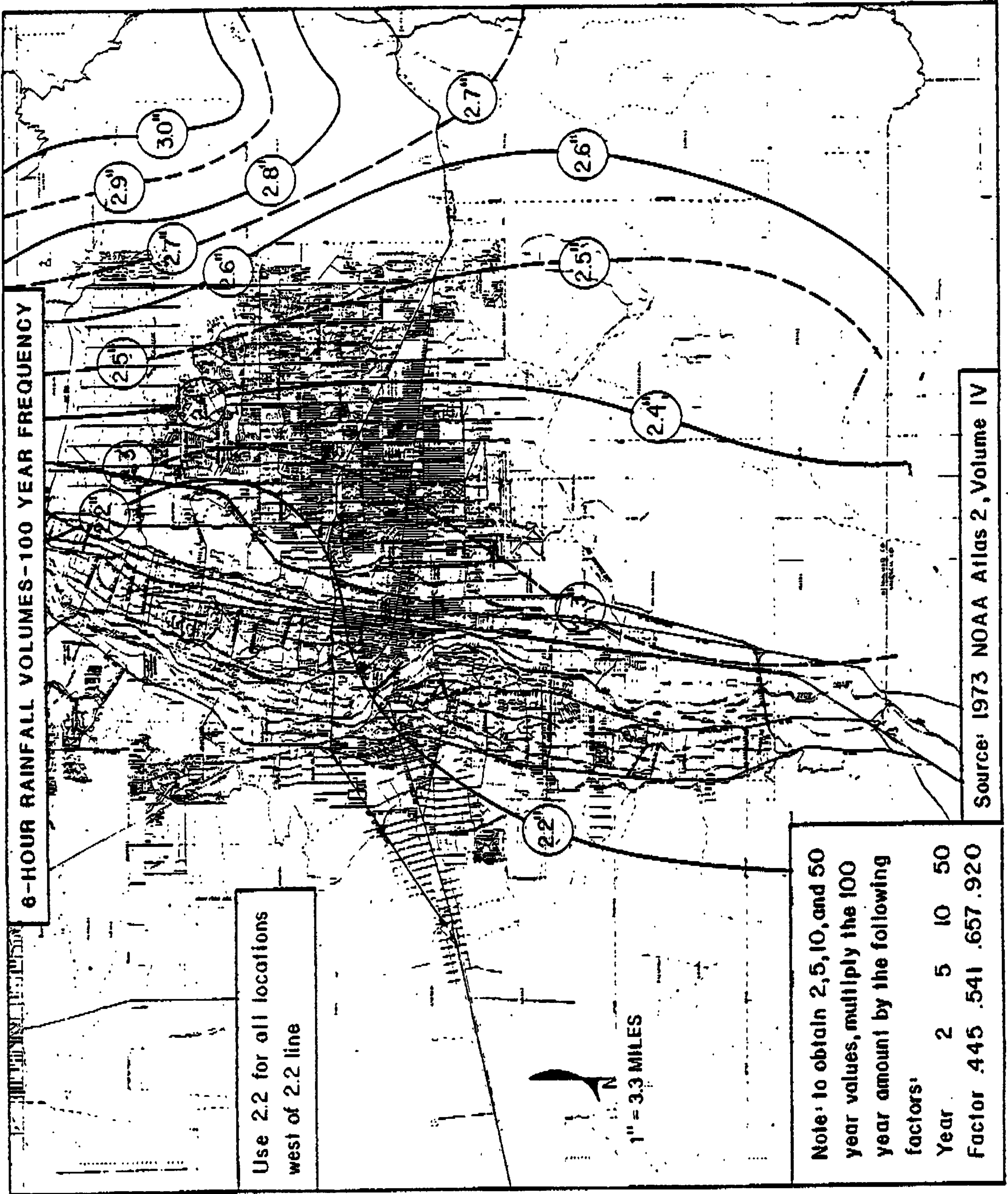
The drainage report and accompanying plan have been prepared under the criteria set forth in the City of Albuquerque's Development Process Manual's Chapter of "Drainage, Flood Control and Erosion Control." Runoff from the minor and major storms are safely conveyed across and through the site. A one foot water block has been provided on all sides of the site that are adjacent to public right-of-way. Runoff that discharged onto the adjacent property to the north has been reduced.

APPENDIX

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|
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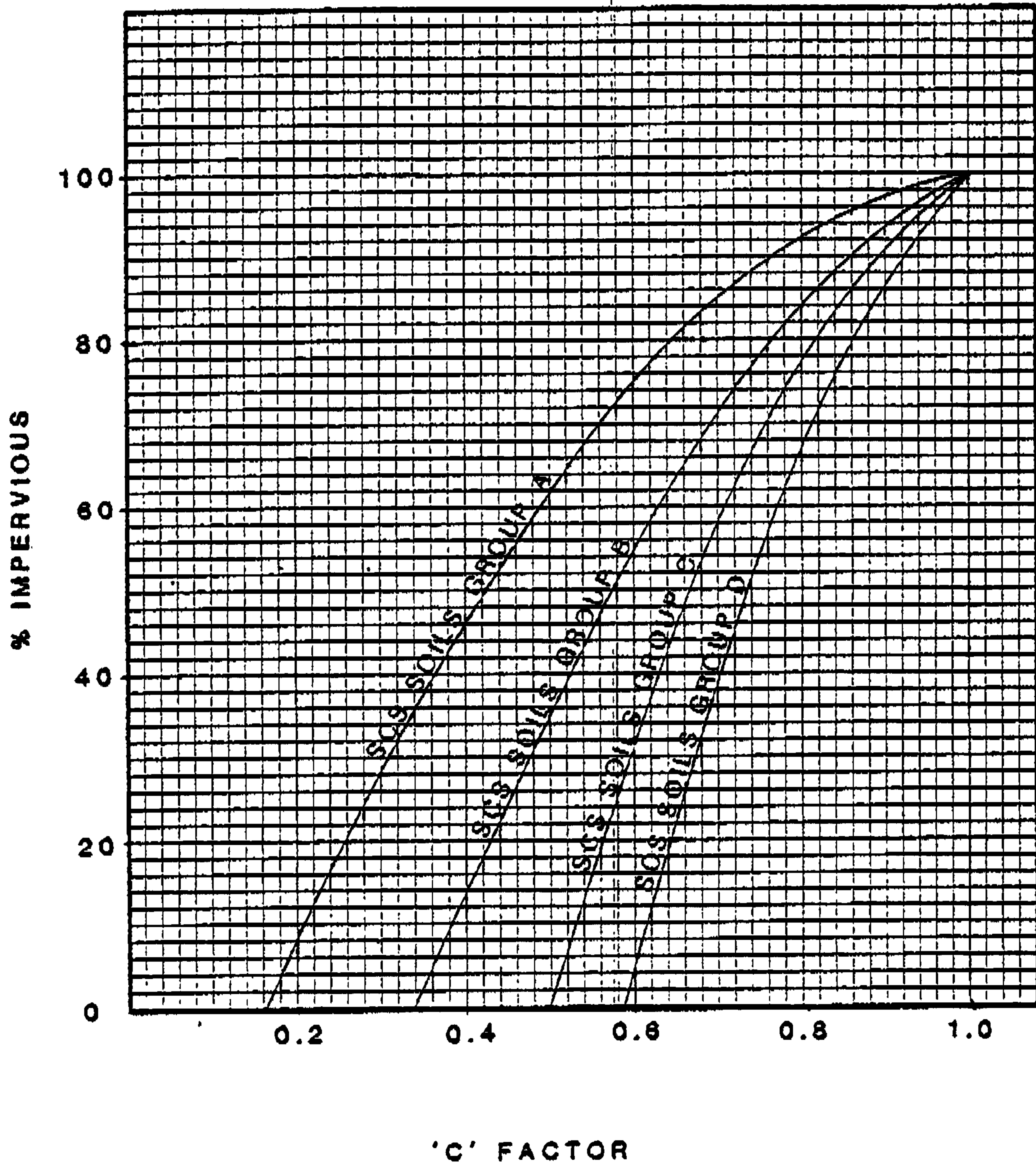


VICINITY MAP
SCALE: 1"=2000'

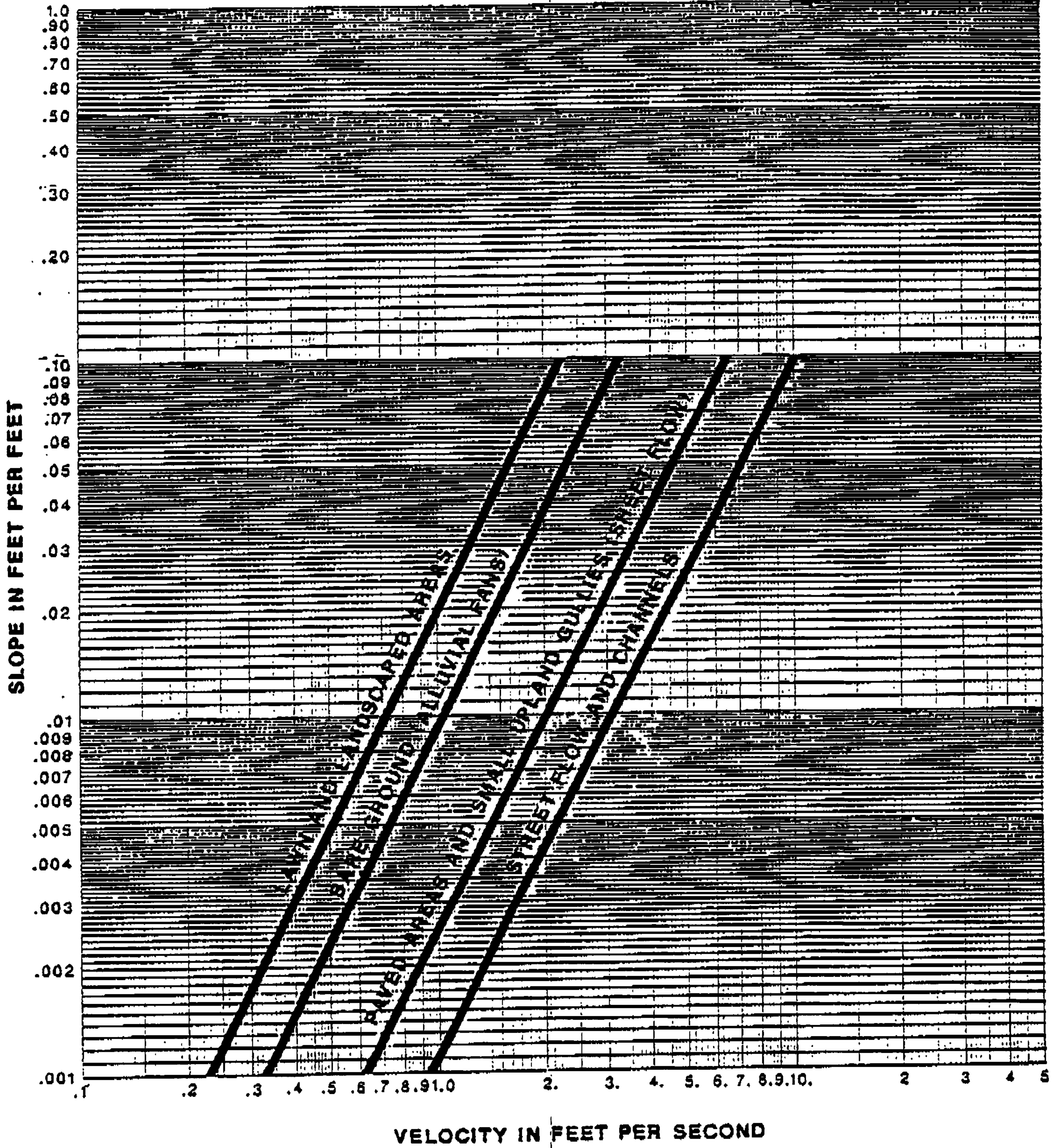


DRAINAGE CRITERIA

DETERMINATION OF RATIONAL FORMULA 'C' FACTOR



"GROUP B" SOIL FROM GEOTECHNICAL ENGINEERING
 EVALUATION BY WESTERN TECHNOLOGIES, INC.



VELOCITIES FOR UPLAND METHOD OF ESTIMATING T_c

Plate 22.2 B-1

5/88

REF. SCS NEH-4

4.4

PERCENT IMPERVIOUS FOR EXISTING BASINS

BASIN DESIGNATION	OVERALL AREA SF	PERVIOUS AREA * SF	IMPERVIOUS AREA SF	PERCENT IMPERVIOUS
A	2215	160	2055	92.8
B	3795	472	3323	87.6
C	20882	19009	1873	9.0
D	13449	12578	921	6.8

42-381 50 SHEETS 1 SQUARE
 42-382 50 SHEETS 1 SQUARE
 42-383 50 SHEETS 1 SQUARE
 42-384 50 SHEETS 1 SQUARE
 NATIONAL

43,281 SQ FEET
 42,282 SQ FEET
 41,283 SQ FEET
 40,284 SQ FEET
 39,285 SQ FEET
 38,286 SQ FEET
 37,287 SQ FEET
 36,288 SQ FEET
 35,289 SQ FEET
 34,290 SQ FEET
 33,291 SQ FEET
 32,292 SQ FEET
 31,293 SQ FEET
 30,294 SQ FEET
 29,295 SQ FEET
 28,296 SQ FEET
 27,297 SQ FEET
 26,298 SQ FEET
 25,299 SQ FEET
 24,300 SQ FEET
 23,301 SQ FEET
 22,302 SQ FEET
 21,303 SQ FEET
 20,304 SQ FEET
 19,305 SQ FEET
 18,306 SQ FEET
 17,307 SQ FEET
 16,308 SQ FEET
 15,309 SQ FEET
 14,310 SQ FEET
 13,311 SQ FEET
 12,312 SQ FEET
 11,313 SQ FEET
 10,314 SQ FEET
 9,315 SQ FEET
 8,316 SQ FEET
 7,317 SQ FEET
 6,318 SQ FEET
 5,319 SQ FEET
 4,320 SQ FEET
 3,321 SQ FEET
 2,322 SQ FEET
 1,323 SQ FEET
 0,324 SQ FEET

PERCENT IMPERVIOUS FOR DEVELOPED BASINS

BASIN DESIGNATION	OVERALL AREA SF	PAVED AREA SF	ROOF AREA SF	LANDSCAPED AREA SF	PERCENT IMPERVIOUS
A	16992	1172	3094	2686	84.2
B	2258	102	0	2156	4.5
C	12030	5946	2303	3781	68.6
D	8760	6251	200	2309	73.6

$$\% I = \frac{\text{PAVED AREA} + \text{ROOF AREA}}{\text{OVERALL AREA}} (100\%)$$

Galloway, Romero & Associates
Design Engineering Planning

14202 East Evans Avenue
Aurora, Colorado 80014
(303) 745-7448
(303) 745-7480 fax

PAGE 07 OF

STORM DRAINAGE SPECIFICATIONS

RUNOFF COMPUTATIONS
(Rational Method)

SUBDIVISION BUENA VENTURA
LOCATION CENTRAL & EURBANK
DESIGN STORM 10 YR RECURRENCE INTERVAL.
COMPUTATIONS BY LLP DATE SEPT 91
SUBMITTED BY _____ DATE _____
(Engineering Firm)

Design Point	Area Designation	A (Acres)	C	A-2	I A-2	tc (min)	I (in/hr)	Q _s (cfs)	Slope (S)	Length L (feet)	VEL ² V (fps)	V ³ (m/h)	Remarks
	A	0.051	0.895	0.046		10.0	3.43	0.16	1.4	45	2.2	0.35	USE 10.0 MIN.
	B	0.087	0.825			10.0	3.43	0.25	2.1	140	4.5	0.5	I = 2.16 (0.657) #2.42 I = 3.43 USE 10.0 MINUTES
	C	0.479	0.38			10.0	3.43	0.62	2.0	240	4.4	0.9	USE 10.0 MIN
	D	0.310	0.37	0.115		10.0	3.43	0.39	2.0	240	4.4	0.9	USE 10.0 MIN

* These values must be substantiated with additional computations or use of appropriate charts, etc.

Galloway, Romero & Associates

Design Engineering Planning

14202 East Evans Avenue
Aurora, Colorado 80014
(303) 745-7446
(303) 745-7460 fax

PAGE 02 OF 02

STORM DRAINAGE SPECIFICATIONS

RUNOFF COMPUTATIONS
(Rational Method)

SUBDIVISION BUENA VENTURA
LOCATION CENTRAL & EUBANK
DESIGN STORM 100 YR RECURRENCE INTERVAL
COMPUTATIONS BY LLP DATE SEPT 91
SUBMITTED BY _____ DATE _____
(Engineering Firm)

Design Point	Area Designation (Acres)	A	C	A-C	I A-C	t ₀ (min)	t (hr)	Q _p (cfs)	Slope (ft)	Length L (feet)	VEL ² V (fps)	t (min)	Remarks
	A	0.051	0.065	0.046		10.0	5.23	0.24					* TC FROM 10YR EXISTING I=0.216, 2.42=5.23
	B	0.087	0.088	0.072		10.0	5.23	0.38					
	C	0.479	0.38	0.182		10.0	5.23	0.95					
	D	0.310	0.37	0.115		10.0	5.23	0.60					

* These values must be substantiated with additional computations or use of appropriate charts, etc.

100 YEAR EXISTING

SUBDIVISION BUENA VENTURA
 LOCATION N.W. 1/4 CENTRAL & SUBBANK
 DESIGN STORM 10 YR RECURRENCE INTERVAL
 COMPUTATIONS BY DL DATE SEPT 91
 SUBMITTED BY _____ DATE _____
 (Engineering Firm)

STORM DRAINAGE SPECIFICATIONS

RUNOFF COMPUTATIONS
 (Rational Method)

Design Point	Area Designation	A (Acres)	C	A-E	I.A.E	to (min)	I (in/hr)	Q _r (MGAL/hr)	Slope (S)	Length L (feet)	VEL ^a V (fps)	t (min)	Remarks
	A	0.389	0.800	0.311		10.0	3.43	1.07	2.75	158*	4.8	0.5	USE 10.0 MIN *ACROSS DRIVE
	B	0.052	0.360	0.019		10.0	3.43	0.07	5.5	20	1.6	0.2	USE 10.0 MIN
	C	0.276	0.680	0.188		10.0	3.43	0.64	6.0	37*	1.8	0.3	USE 10.0 MIN *ACROSS-LANDSCAPE
	D	0.201	0.715	0.144		10.0	3.43	0.49	1.3	100	3.6	0.5	USE 10.0 MIN
	Σ A-D				0.662	10.0	3.43	2.27*	* FOR COMPARISON PURPOSES ONLY				

PAGE 09

14202 East Evans Avenue,
 Aurora, Colorado 80014
 (303) 745-7448
 (303) 745-7480 Fax

Galloway, Romero & Associates
 Design Engineering Planning

^a These values must be substantiated with additional computations or use of appropriate charts, etc.

10 YEAR DEVELOPED

SUBDIVISION BUENA VISTA

LOCATION NWC CENTRAL & EUBANK

DESIGN STORM 100 YR RECURRENCE INTERVAL

COMPUTATIONS BY DLW DATE SEPT 91

SUBMITTED BY _____ DATE _____

(Engineering Firm)

STORM DRAINAGE SPECIFICATIONS

RUNOFF COMPUTATIONS
(National Method)

Galloway, Romero & Associates

Design Engineering Planning

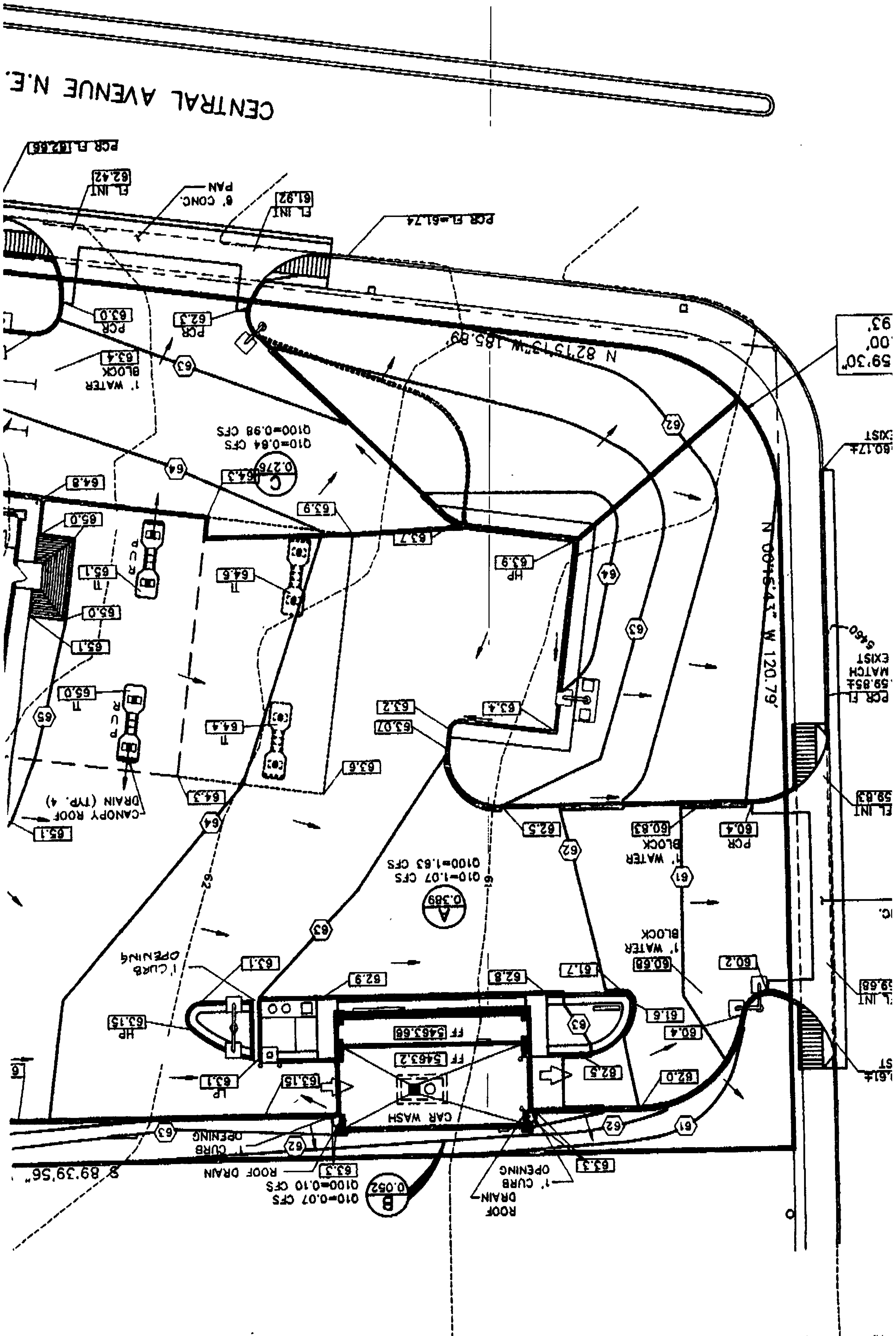
14202 East Evans Avenue
Aurora, Colorado 80014
(303) 745-7440
(303) 745-7440 fax

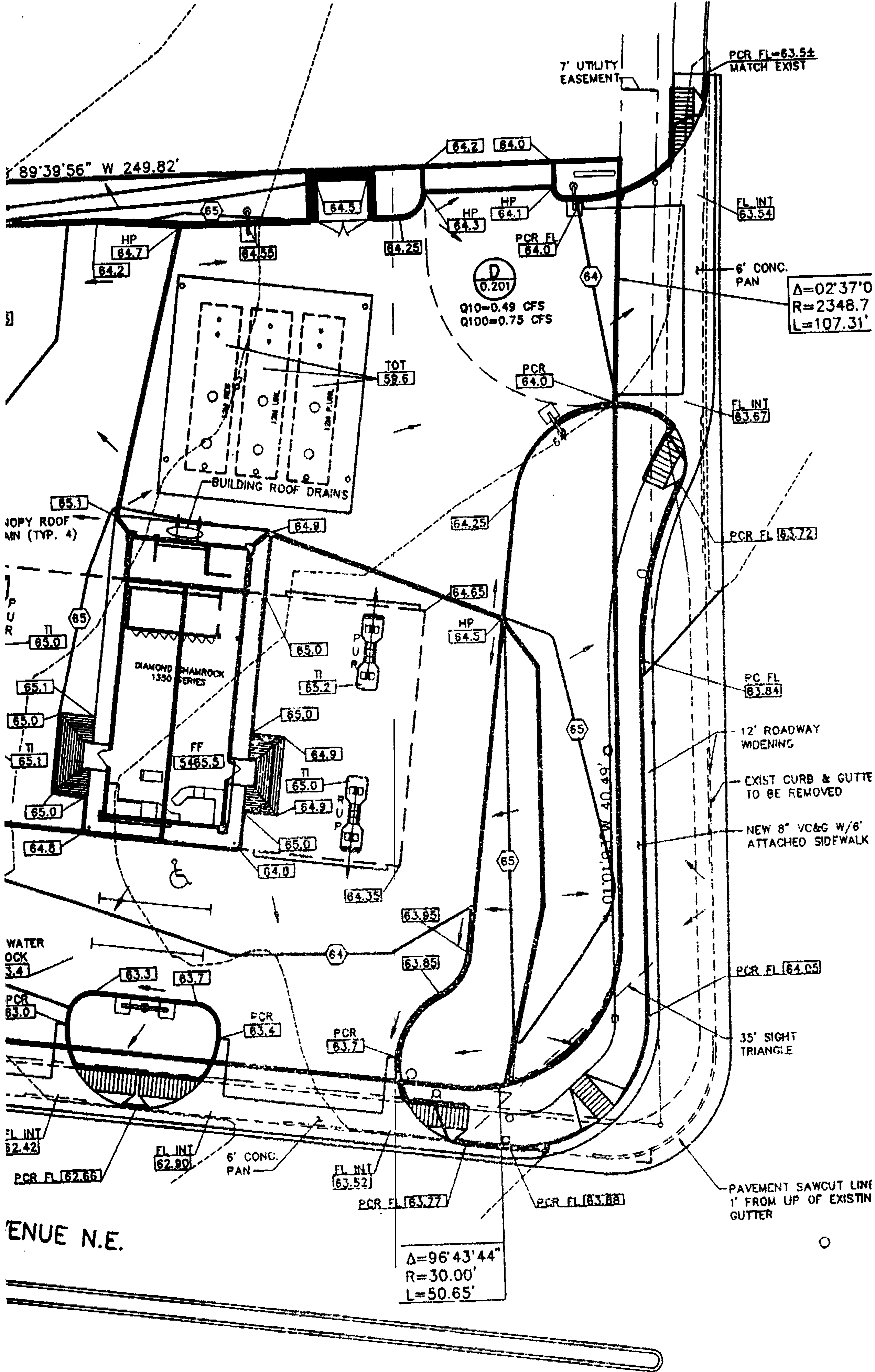
PAGE 08 OF

Design Point	Area Designation	A (Acres)	a	A-E	I A-E	to (min)	I (in/hr)	Q _a (IAE) (cfs)	Slope (S)	Length L (feet)	VEL ^a V (ips)	t (min)	Remarks
	A	0.389	0.800	0.311		10.0	5.23	1.63					
	B	0.052	0.360	0.019		10.0	5.23	0.10					
	C	0.276	0.68	0.188		10.0	5.23	0.98					
	D	0.201	0.715	0.144		10.0	5.23	0.75					
	Σ A-D				0.662	10.0	5.23	3.46	*				FOR COMPARISON PURPOSES ONLY

^a These values must be substantiated with additional computations or use of appropriate charts, etc.

100 YEAR DEVELOPED





GALLOWAY, ROMERO & ASSOCIATES
Design Engineering Planning

14202 E. Evans Ave.
Aurora, CO. 80014
(303) 745-7448
FAX: (303) 745-7480

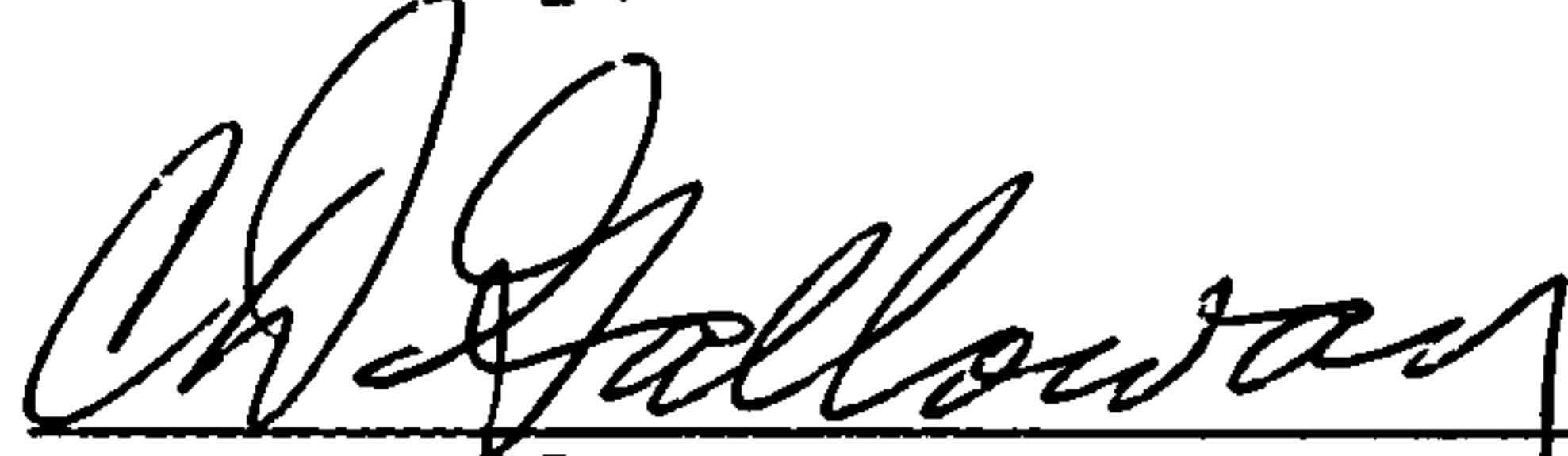
January 10, 1992

Mr. Bernie J. Montoya C.E.
City of Albuquerque
Public Works Department
P.O. Box 1293
Albuquerque, New Mexico 87107

Dear Mr. Montoya:

This is to certify that the Diamond Shamrock site at 10315 Central Avenue N.E. was constructed in substantial compliance with the approved grading and drainage plan.

Sincerely,



C.D. Galloway, P.E.
New Mexico Registered
Professional Engineer

cc: Jim Reed, Diamond Shamrock

Enclosures

LLP/srd





City of Albuquerque

P.O. BOX 1293 | ALBUQUERQUE, NEW MEXICO 87103

September 23, 1991

Dave Galloway
Galloway, Romero & Associates
14202 East Evan Avenue
Aurora, Colorado 80014

RE: DRAINAGE PLAN FOR DIAMOND SHAMROCK @ CENTRAL & EUBANK
(L-20/D47) RECEIVED SEPTEMBER 12, 1991

Dear Mr. Galloway:

Based on the information provided on your submittal of September 12, 1991, listed are some concerns that will need to be addressed prior to final approval:

1. All finish floor elevations must be to mean sea level designation.
2. Location and direction of all roof drains.
3. Basin B developed runoff is not allowed to enter the property to the north. All developed runoff must be routed towards the asphalt area.
4. No developed runoff is allowed to cross the public sidewalk.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj
(WP+2931)

PUBLIC WORKS DEPARTMENT

Walter H. Nickerson, Jr., P.E.
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

SEP 2

LEGAL DESCRIPTION (BEFORE RIGHT-OF-WAY DEDICATION)

A CERTAIN TRACT OF LAND BEING A PORTION OF LOT G, BLOCK 8, AS SHOWN AND DESIGNATED ON THE PLAT OF BUENA VENTURA, SAID PLAT THEREOF, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON SEPTEMBER 11, 1941 IN VOLUME C1, FOLIO 8, SAID TRACT LYING SITUATE WITHIN THE NORTHEAST QUARTER (N.E. 1/4) OF SECTION 29, T.10 N., R.4 E., N.M.P.M., WITHIN THE ALBUQUERQUE CITY LIMITS, BERNALILLO COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID TRACT HEREIN DESCRIBED, BEING THE POINT INTERSECTING THE NORTH RIGHT OF WAY LINE OF CENTRAL AVENUE EAST WITH THE EAST RIGHT OF WAY LINE OF GLORIETA STREET N.E., AND ALSO BEING THE SAME POINT AS THE SOUTHWEST CORNER OF SAID LOT G, BLOCK 8; THENCE, FROM SAID POINT OF BEGINNING, N 00°15'43" W, ALONG, ADJOINING AND ADJACENT TO SAID EAST RIGHT OF WAY LINE, 141.97 FEET TO THE NORTHWEST CORNER OF SAID TRACT HEREIN DESCRIBED; THENCE, N 89°39'56" E, LEAVING SAID EAST RIGHT OF WAY LINE, 256.31 FEET TO THE NORTHEAST CORNER OF SAID TRACT HEREIN DESCRIBED, BEING A POINT ON A CURVE ON THE PRESENT WEST RIGHT OF WAY LINE OF EUBANK BOULEVARD N.E.; THENCE, SOUTHWESTERLY ALONG, ADJOINING AND ADJACENT TO SAID PRESENT WEST RIGHT OF WAY LINE, ALONG A CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 02°26'08" HAVING A RADIUS OF 2341.74 FEET AND AN ARC LENGTH OF 99.54 FEET (CHORD=S 02°14'07" W, 99.54') TO A POINT OF TANGENCY; THENCE, S 01°01'03" W, CONTINUING ALONG; ADJOINING AND ADJACENT TO SAID WEST RIGHT OF WAY LINE, 78.08 FEET TO THE SOUTHEAST CORNER OF SAID TRACT HEREIN DESCRIBED, BEING THE POINT INTERSECTING SAID PRESENT WEST RIGHT OF WAY LINE OF EUBANK BOULEVARD N.E. WITH SAID NORTH RIGHT OF WAY LINE OF CENTRAL AVENUE EAST; THENCE, N 82°15'13" W, ALONG, ADJOINING AND ADJACENT TO SAID NORTH RIGHT OF WAY LINE, 252.69 FEET TO THE SOUTHWEST CORNER OF SAID TRACT HEREIN DESCRIBED, THE POINT OF BEGINNING AND CONTAINING AN AREA OF 0.9272 ACRES, MORE OR LESS (40,391.26 SQUARE FEET, MORE OF LESS).

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Central & Eubank Cornerstore | ZONE ATLAS/DRNG. FILE #: L20/D47
 DRB #: N/A | EPC #: N/A | WORK ORDER #: N/A
 LEGAL DESCRIPTION: See Attached
 CITY ADDRESS: 121 Eubank Blvd. N.E.
 ENGINEERING FIRM: Galloway, Romero & Associates | CONTACT: Dave Galloway
 ADDRESS: 14202 East Evans Avenue | PHONE: 745-7448
 OWNER: Diamond Shamrock Inc. | CONTACT: Jim Reed
 ADDRESS: 9702 Brockbank, Dallas, TX 75220 | PHONE: (214) 357-7386
 ARCHITECT: N/A | CONTACT: _____
 ADDRESS: _____ | PHONE: _____
 SURVEYOR: N/A | CONTACT: _____
 ADDRESS: _____ | PHONE: _____
 CONTRACTOR: N/A | CONTACT: _____
 ADDRESS: _____ | PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

- YES
- NO
- COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- SKETCH PLAT APPROVAL
- PRELIMINARY PLAT APPROVAL
- S. DEV. PLAN FOR SUB'D. APPROVAL
- S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- SECTOR PLAN APPROVAL
- FINAL PLAT APPROVAL
- FOUNDATION PERMIT APPROVAL
- BUILDING PERMIT APPROVAL
- CERTIFICATE OF OCCUPANCY APPROVAL
- GRADING PERMIT APPROVAL
- PAVING PERMIT APPROVAL
- S.A.D. DRAINAGE REPORT
- DRAINAGE REQUIREMENTS
- OTHER _____ (SPECIFY)

SEP 12 1991

DATE SUBMITTED:

BY:

9/9/91
[Signature]



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 27, 1991

Dave Galloway
Galloway, Romero & Associates
14202 East Evan Avenue
Aurora, Colorado 80014

RE: REVISED DRAINAGE PLAN FOR DIAMOND SHAMROCK @ CENTRAL & EUBANK
(L-20/D47) REVISION DATED SEPTEMBER 24, 1991

Dear Mr. Galloway:

Based on the information provided on your submittal of September 24, 1991, the above referenced plan is approved for Building Permit.

Please attach a copy of this plan to the construction sets prior to sign-off by Hydrology.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya, C.E.
Engineering Assistant

xc: Jim Miller
Alan Martinez

BJM/bsj
(WP+2931)

PUBLIC WORKS DEPARTMENT

Walter H. Nickerson, Jr., P.E.
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

LETTER OF TRANSMITTAL

L20/047



Galloway, Romero & Associates
Design Engineering Planning

14202 East Evans Avenue
Aurora, Colorado 80014
(303) 745-7448
(303) 745-7480 Fax

09-25-91

DATE SEPT 24 1991

PROJECT DIAMOND SHAMROCK

LOCATION CENTRAL & EUBANK

ATTENTION BERNIE MONTOYA

RE:

REVISED DRAINAGE PLAN

ACTIVITY # 5831000

TO:
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPT.
P.O. BOX 1293
ALBUQUERQUE NEW MEXICO 87103

WE ARE SENDING YOU: HEREWITH DELIVERED BY HAND OVERNIGHT

VIA _____

THE FOLLOWING ITEMS: PRINTS MYLARS PHOTOCOPIES COPY OF LETTER SPECIFICATIONS

REPORTS

COPIES	DATE OR NO.	DESCRIPTION
3		SEALED DRAINAGE REPORTS (REVISED PER CITY COMMENTS)

THESE ARE TRANSMITTED AS INDICATED BELOW

FOR YOUR USE AS REQUESTED FOR REVIEW AND COMMENT FOR APPROVAL

APPROVED AS NOTED RETURNED FOR CORRECTIONS _____

REMARKS:

COPIES TO: JIM REED, DIAMOND SHAMROCK
JIM MILLER, MILLER & ASSOC

SIGNED: DAVE JONES

DRainage INFORMATION SHEET

PROJECT TITLE: Central & Eubank Cornerstore

ZONE ATLAS/DRNG. FILE #: L201047

DRB #: N/A

EPC #: N/A

WORK ORDER #: N/A

LEGAL DESCRIPTION: See Attached

CITY ADDRESS: 121 Eubank Blvd. N.E.

ENGINEERING FIRM: Galloway, Romero & Associates

CONTACT: Dave Galloway

ADDRESS: 14202 East Evans Avenue

PHONE: 745-7448

OWNER: Diamond Shamrock Inc.

CONTACT: Jim Reed

ADDRESS: 9702 Brockbank, Dallas, TX 75220

PHONE: (214) 357-7386

ARCHITECT: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

SURVEYOR: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

CONTRACTOR: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

TYPE OF SUBMITTAL:

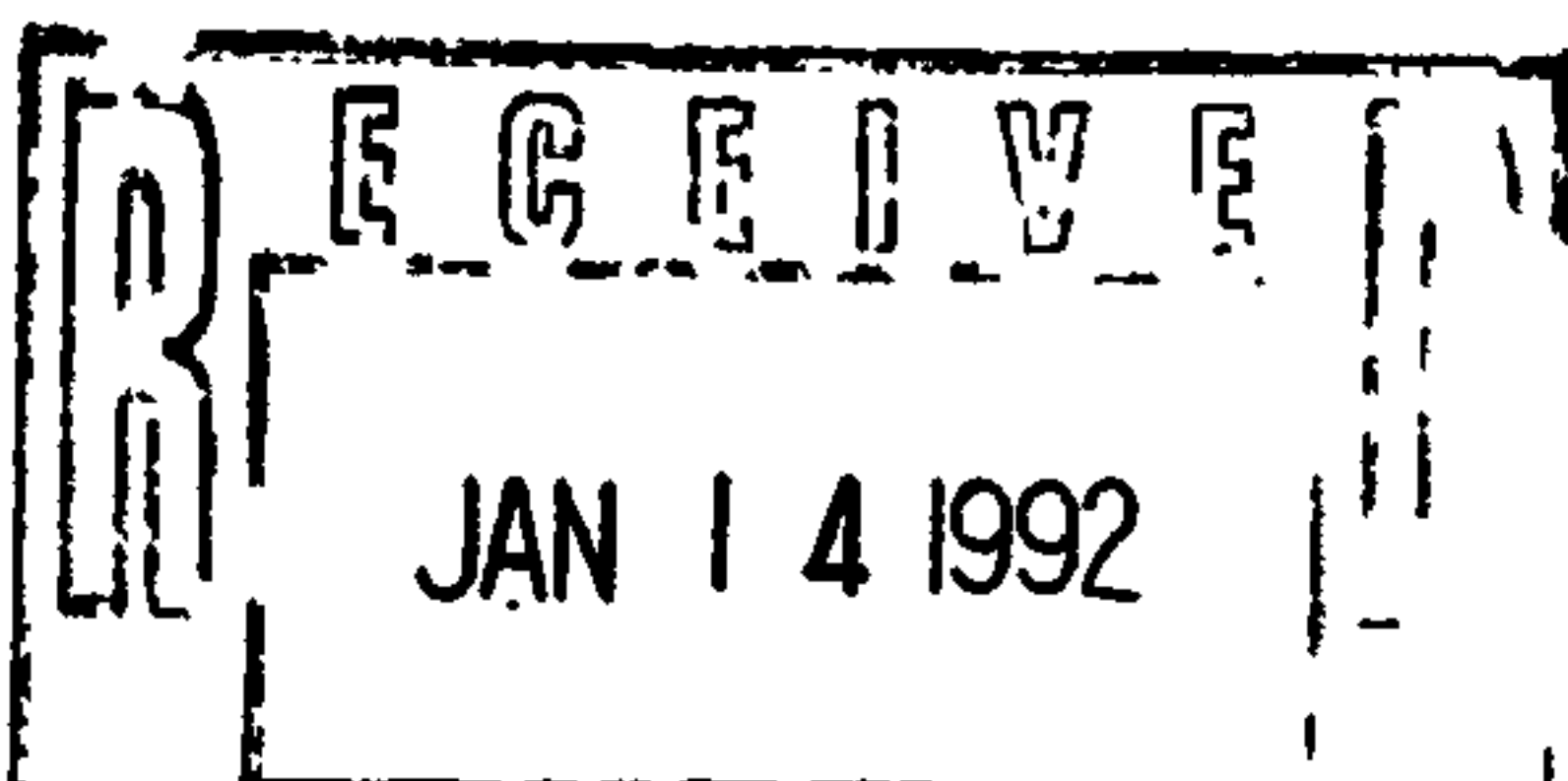
- DRAINAGE REPORT
- DRAINAGE PLAN
- CONCEPTUAL GRADING & DRAINAGE PLAN
- GRADING PLAN
- EROSION CONTROL PLAN
- ENGINEER'S CERTIFICATION
- OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- SKETCH PLAT APPROVAL
- PRELIMINARY PLAT APPROVAL
- S. DEV. PLAN FOR SUB'D. APPROVAL
- S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- SECTOR PLAN APPROVAL
- FINAL PLAT APPROVAL
- FOUNDATION PERMIT APPROVAL
- BUILDING PERMIT APPROVAL
- CERTIFICATE OF OCCUPANCY APPROVAL
- GRADING PERMIT APPROVAL
- PAVING PERMIT APPROVAL
- S.A.D. DRAINAGE REPORT
- DRAINAGE REQUIREMENTS
- OTHER _____ (SPECIFY)

PRE-DESIGN MEETING:

- YES
- NO
- COPY PROVIDED



DATE SUBMITTED: SEPTEMBER 12, 1991

BY: JIM MILLER W/MILLER & ASSOC.

JAN 14 1992

LEGAL DESCRIPTION (BEFORE RIGHT-OF-WAY DEDICATION)

A CERTAIN TRACT OF LAND BEING A PORTION OF LOT G, BLOCK 8, AS SHOWN AND DESIGNATED ON THE PLAT OF BUENA VENTURA, SAID PLAT THEREOF, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON SEPTEMBER 11, 1941 IN VOLUME C1, FOLIO 8, SAID TRACT LYING SITUATE WITHIN THE NORTHEAST QUARTER (N.E. 1/4) OF SECTION 29, T.10 N., R.4 E., N.M.P.M., WITHIN THE ALBUQUERQUE CITY LIMITS, BERNALILLO COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID TRACT HEREIN DESCRIBED, BEING THE POINT INTERSECTING THE NORTH RIGHT OF WAY LINE OF CENTRAL AVENUE EAST WITH THE EAST RIGHT OF WAY LINE OF GLORIETA STREET N.E., AND ALSO BEING THE SAME POINT AS THE SOUTHWEST CORNER OF SAID LOT G, BLOCK 8; THENCE, FROM SAID POINT OF BEGINNING, N 00°15'43" W, ALONG, ADJOINING AND ADJACENT TO SAID EAST RIGHT OF WAY LINE, 141.97 FEET TO THE NORTHWEST CORNER OF SAID TRACT HEREIN DESCRIBED; THENCE, N 89°39'56" E, LEAVING SAID EAST RIGHT OF WAY LINE, 256.31 FEET TO THE NORTHEAST CORNER OF SAID TRACT HEREIN DESCRIBED, BEING A POINT ON A CURVE ON THE PRESENT WEST RIGHT OF WAY LINE OF EUBANK BOULEVARD N.E.; THENCE, SOUTHWESTERLY ALONG, ADJOINING AND ADJACENT TO SAID PRESENT WEST RIGHT OF WAY LINE, ALONG A CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 02°26'08" HAVING A RADIUS OF 2341.74 FEET AND AN ARC LENGTH OF 99.54 FEET (CHORD=S 02°14'07" W, 99.54') TO A POINT OF TANGENCY; THENCE, S 01°01'03" W, CONTINUING ALONG; ADJOINING AND ADJACENT TO SAID WEST RIGHT OF WAY LINE, 78.08 FEET TO THE SOUTHEAST CORNER OF SAID TRACT HEREIN DESCRIBED, BEING THE POINT INTERSECTING SAID PRESENT WEST RIGHT OF WAY LINE OF EUBANK BOULEVARD N.E. WITH SAID NORTH RIGHT OF WAY LINE OF CENTRAL AVENUE EAST; THENCE, N 82°15'13" W, ALONG, ADJOINING AND ADJACENT TO SAID NORTH RIGHT OF WAY LINE, 252.69 FEET TO THE SOUTHWEST CORNER OF SAID TRACT HEREIN DESCRIBED, THE POINT OF BEGINNING AND CONTAINING AN AREA OF 0.9272 ACRES, MORE OR LESS (40,391.26 SQUARE FEET, MORE OF LESS).

GALLOWAY, ROMERO & ASSOCIATES
Design Engineering Planning

14202 E Ivan Ave
Aurora, CO 80014
(303) 745-7448
FAX (303) 745-7450

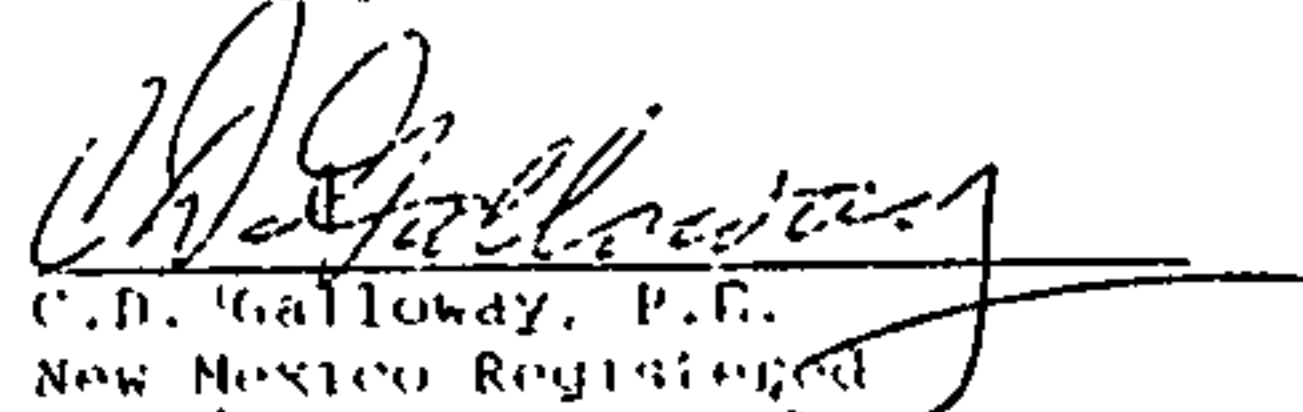
January 10, 1992

Mr. Bernice J. Montoya, C.E.
City of Albuquerque
Public Works Department
P.O. Box 1293
Albuquerque, New Mexico 87107

Dear Mr. Montoya:

This is to certify that the Diamond Shamrock site at 10315
Central Avenue N.E. was constructed in substantial compliance
with the approved grading and drainage plan.

Sincerely,


C.D. Galloway, P.E.
New Mexico Registered
Professional Engineer

cc: Jim Reed, Diamond Shamrock

Enclosures

LBP/srd



FINAL DRAINAGE REPORT
CENTRAL & EUBANK CORNERSTORE
CENTRAL AVENUE & EUBANK BOULEVARD
CITY OF ALBUQUERQUE, NEW MEXICO
SEPTEMBER, 1991

REVISED SEPTEMBER 24, 1991

Prepared For:

Diamond Shamrock Inc.
9702 Brockbank
Dallas, TX 75220
(214) 357-7386
Attn: Jim Reed

Prepared By:

Galloway, Romero and Associates, Inc.
14202 E. Evans Ave.
Aurora, CO 80014
(303) 745-7448
Attn: Larry L. Parker

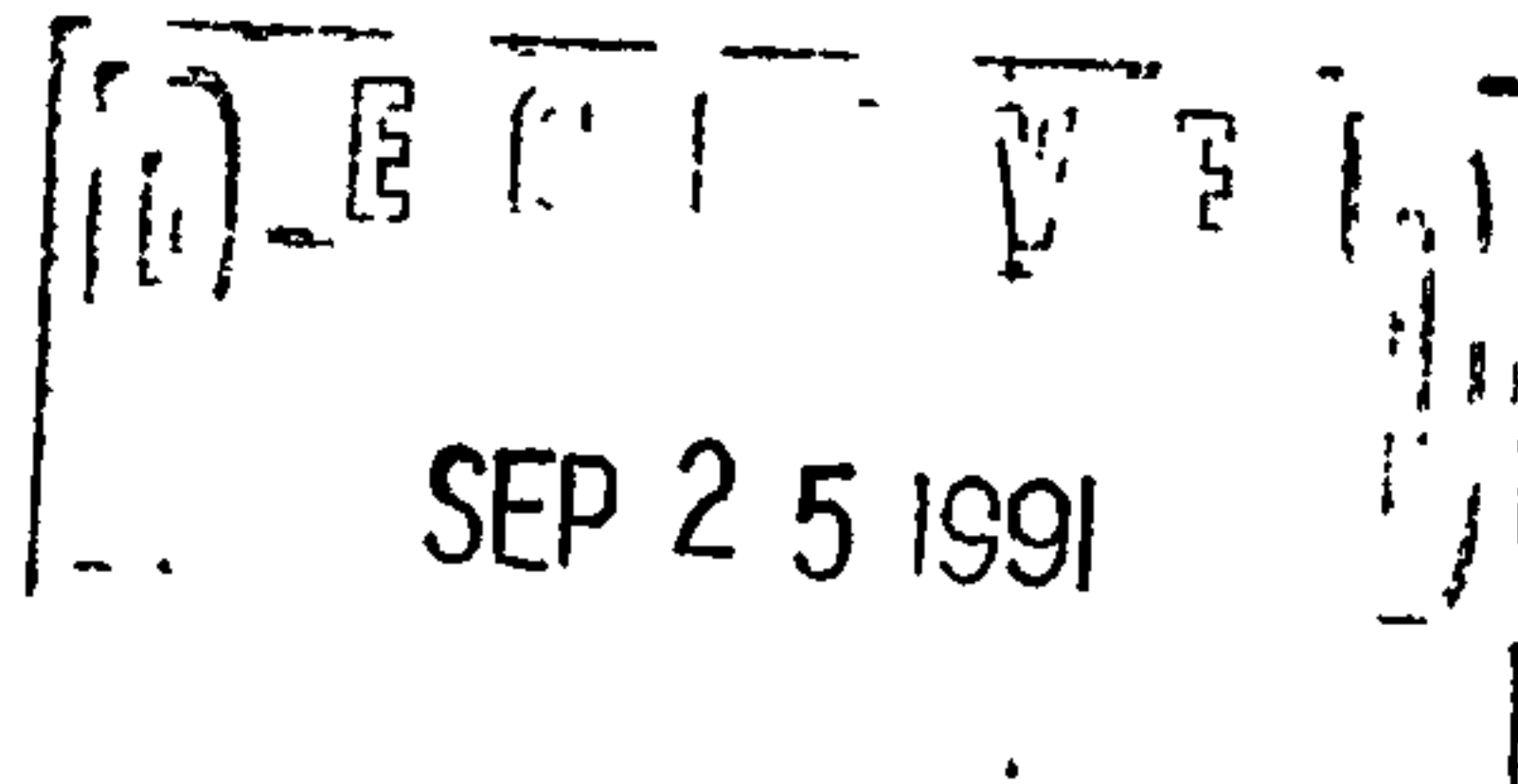


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Existing Drainage Map	Back Pocket
Grading and Developed Drainage Plan	of this report

Introduction

This report is being prepared for Diamond Shamrock Inc., the developer of the site, to fulfill the drainage requirements of Albuquerque, New Mexico. The report analyzes offsite and onsite runoff from the minor (10 year frequency) and major (100 year frequency) storms and routes these flows through the site.

The 0.9183 acre site is part of the northeast 1/4 of Section 29, Township 10 North, Range 4 East of the New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico. The site is bounded by Eubank Boulevard N.E. on the East, by Central Avenue N.E. on the South, by Glorieta Street N.E. on the West and by vacant C-2 zoned property to the north. The site is currently platted and is a portion of Lot G, Block 8 of Buena Ventura. With the development, the site will be replatted and known as Lot G-2, Block 8 of Buena Ventura.

Currently three buildings, block and wood frame, occupy the southeasterly corner of the site. Large asphalt and concrete paved areas are immediately adjacent to the buildings. With the exception of isolated paved areas, the remainder of the site is covered with gravel paving. The site slopes downward from southeast to northwest at slopes ranging from 4 to 1 percent.

Design Criteria

This report was prepared using criteria as outlined in the City of Albuquerque's Development Process Manual, Chapter 22, "Drainage, Flood Control and Erosion Control."

Runoff for the minor and major storms, 10 and 100 year frequency, respectively, was calculated using the rational method. Times of concentration, upland method, was calculated for the individual basins. Because the hydraulic lengths are short, all times were small and a minimum time of 10 minutes was used. Rainfall intensity values were taken from the 6-hour/100 year frequency chart and were adjusted by the appropriate factors for storm reduction and dimensionless rainfall.

Runoff calculations and applicable charts and graphs are included in the appendix of this report.

Existing Drainage

The existing site is divided into four drainage basins, A through D. Basin A is a 0.051 acre basin, at the easterly portion of the site, that primarily consists of rooftop, asphalt and concrete paved areas. The 10 and 100 year runoff of 0.16 and 0.24 cfs, respectively, is largely unconcentrated and exits the site along the easterly property line, flowing into Eubank Boulevard.

Basin B is a 0.087 acre basin, along the southerly portion of the site, that consists of rooftop, asphalt, concrete and gravel paved areas. The 10 and 100 year runoff of 0.25 and 0.38 cfs, respectively, is largely unconcentrated and exits the site along the southerly property line, flowing into Central Avenue.

Basin C is a 0.479 acre basin that consists of rooftop, asphalt and gravel paved areas. The uppermost reach of the basin begins at the existing structures at the easterly side of the site. The 10 and 100 year runoff of 0.62 and 0.95 cfs, respectively, is largely unconcentrated and exits the site along the westerly property line, flowing into Glorieta Street.

Basin D is a 0.310 acre basin, along the northerly portion of the site, that consists of rooftop, asphalt, concrete and gravel paved areas. The 10 and 100 year runoff of 0.39 and 0.60 cfs, respectively, is largely unconcentrated and exits the site along the northerly property line.

Developed Drainage

General Concept

One foot high water blocks have been provided along all street frontages per the City of Albuquerque's requirements. The high point of the developed site is the finished floor of the convenience store. The majority of the sites runoff freely discharging onto the adjacent site to the north has been reduced.

Specific Details

The site is divided into four drainage basins, A through D. Basin A is a 0.389 acre basin, along the westerly portion of the site, that consists of canopy rooftop, carwash rooftop, concrete paved and landscaped areas. The 10 and 100 year runoff is 1.07 and 1.63 cfs, respectively. Developed flow from the rooftop and paved areas exits the site through the Glorieta Street curb cut. Landscaped areas in basin A sheetflow westerly across the landscaped area to the Glorieta Street gutter.

Basin B is a 0.052 acre basin, along the northerly portion of the site, that consists of landscaped areas. The 10 and 100 year runoff of 0.07 and 0.10 cfs, respectively, is unconcentrated, and sheetflows off the site along the northerly property line.

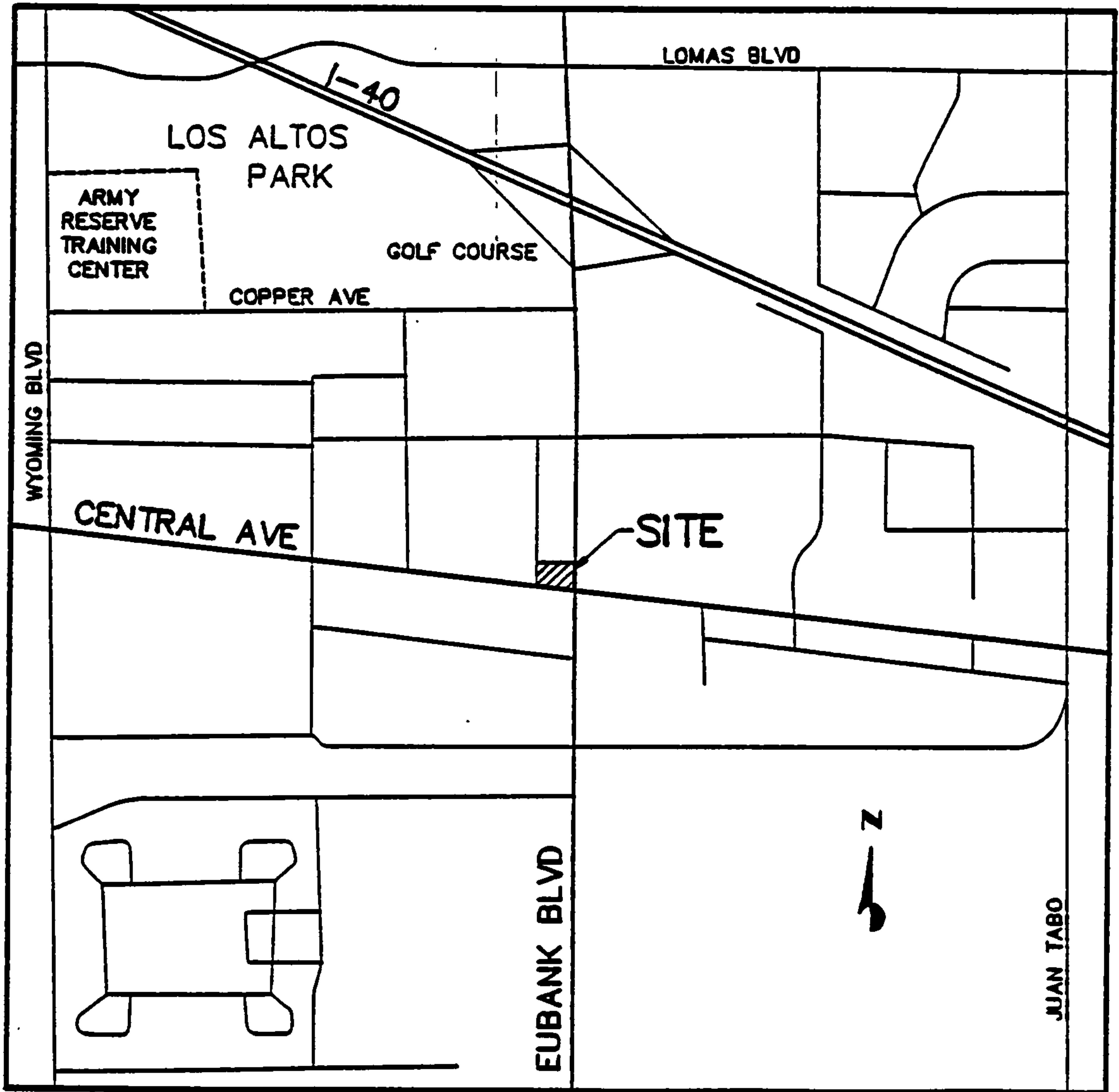
Basin C is a 0.276 acre basin, along the southerly portion of the site, that consists of canopy rooftop, concrete paving and landscaped areas. The 10 and 100 year runoff is 0.64 and 0.98 cfs, respectively. Developed flow from the rooftop and paved areas exits the site through the Central Avenue curb cuts. Landscaped areas in basin C sheetflow southerly across the landscaped area to the Central Avenue gutter.

Basin D is a 0.201 acre basin, at the northeasterly corner of the site, that consists of canopy rooftop, convenience store rooftop, concrete paving and landscaped areas. The 10 and 100 year runoff is 0.49 and 0.75 cfs, respectively. Developed flow from the rooftop and paved areas exit the site through the Eubank Boulevard curb cut. Landscaped areas in basin D sheetflow easterly across the landscaped area to the Eubank Boulevard gutter.

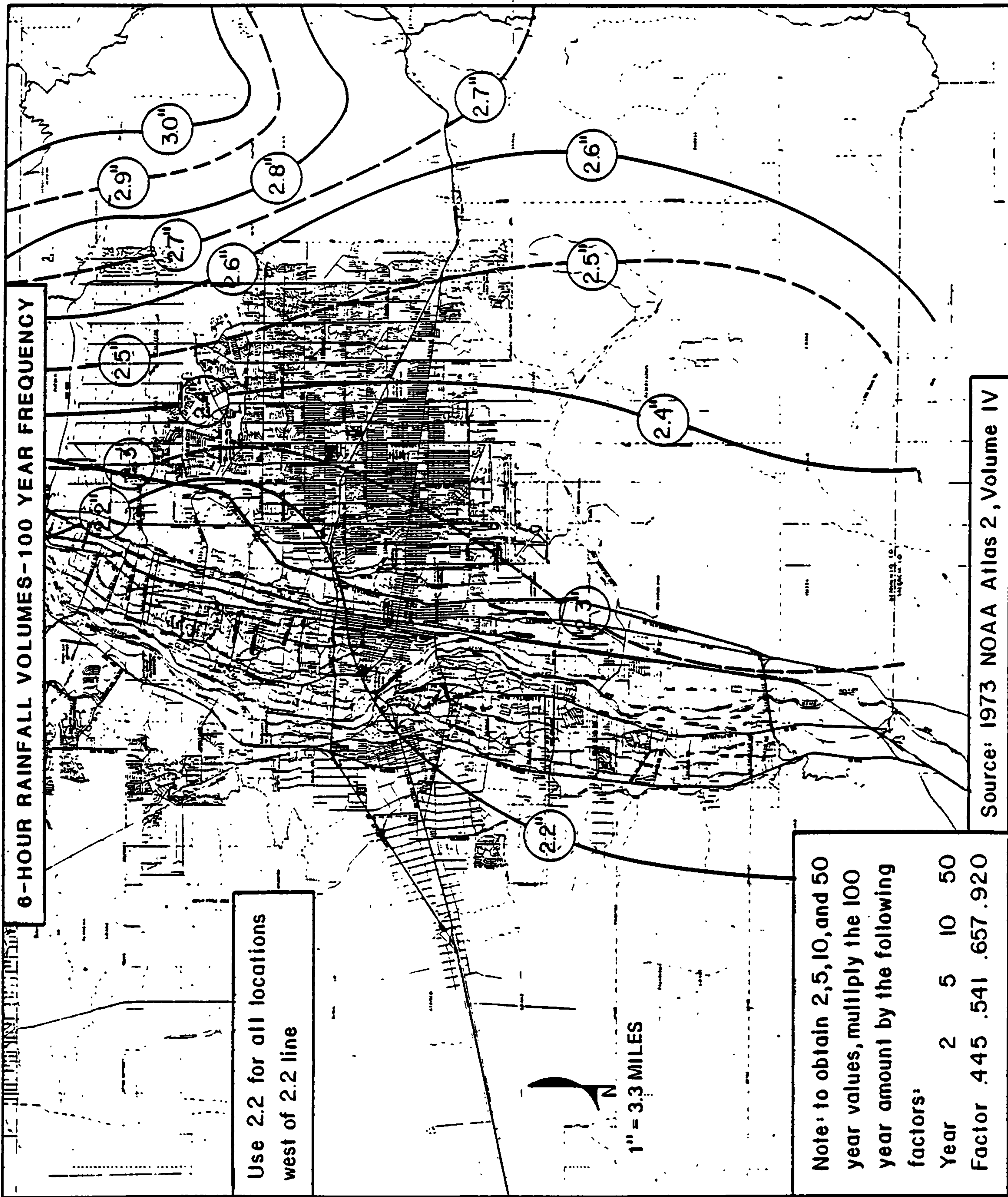
Conclusions

The drainage report and accompanying plan have been prepared under the criteria set forth in the City of Albuquerque's Development Process Manual's Chapter of "Drainage, Flood Control and Erosion Control." Runoff from the minor and major storms are safely conveyed across and through the site. A one foot water block has been provided on all sides of the site that are adjacent to public right-of-way. Runoff that discharged onto the adjacent property to the north has been reduced.

APPENDIX

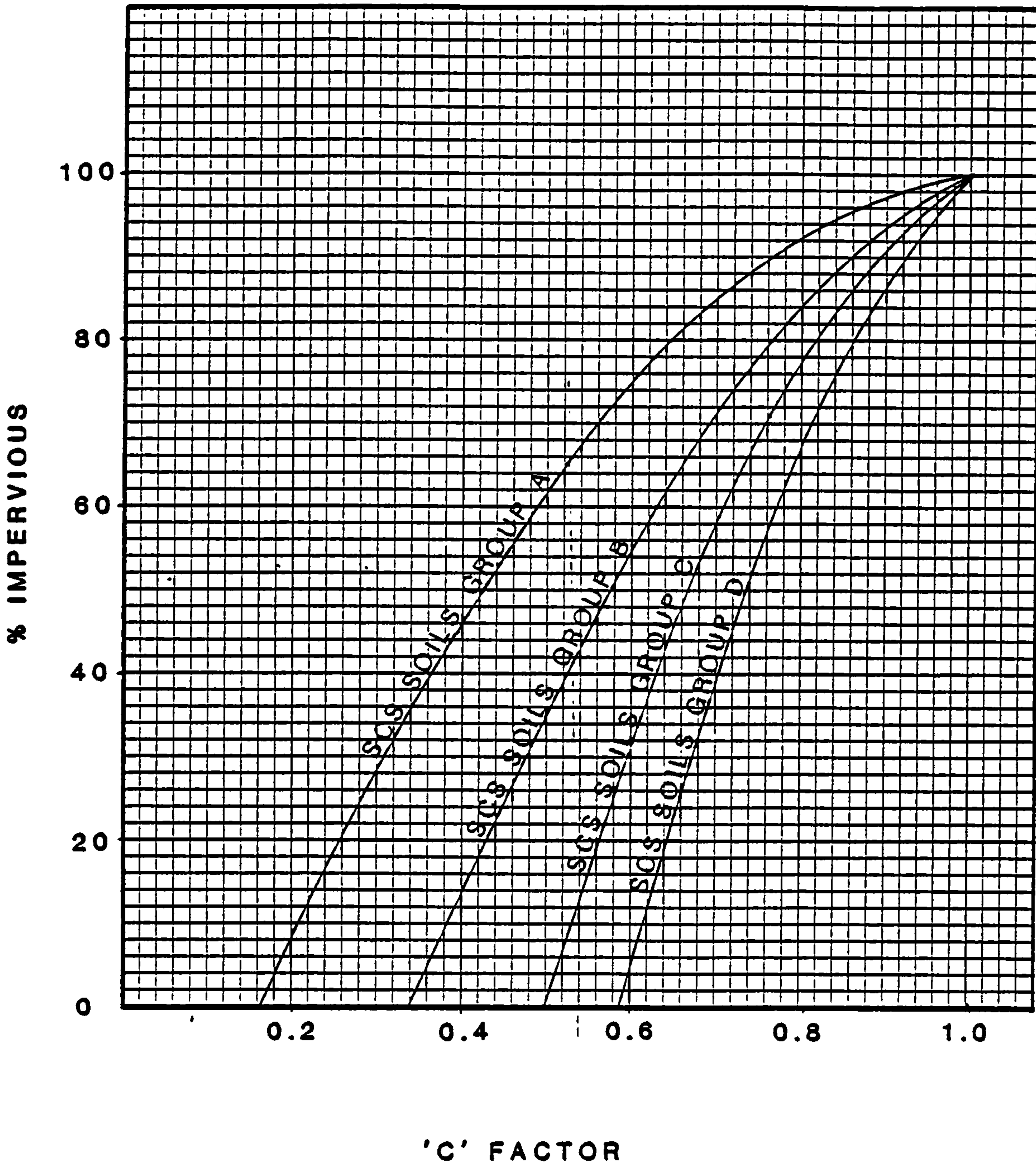


VICINITY MAP
SCALE: 1" = 2000'

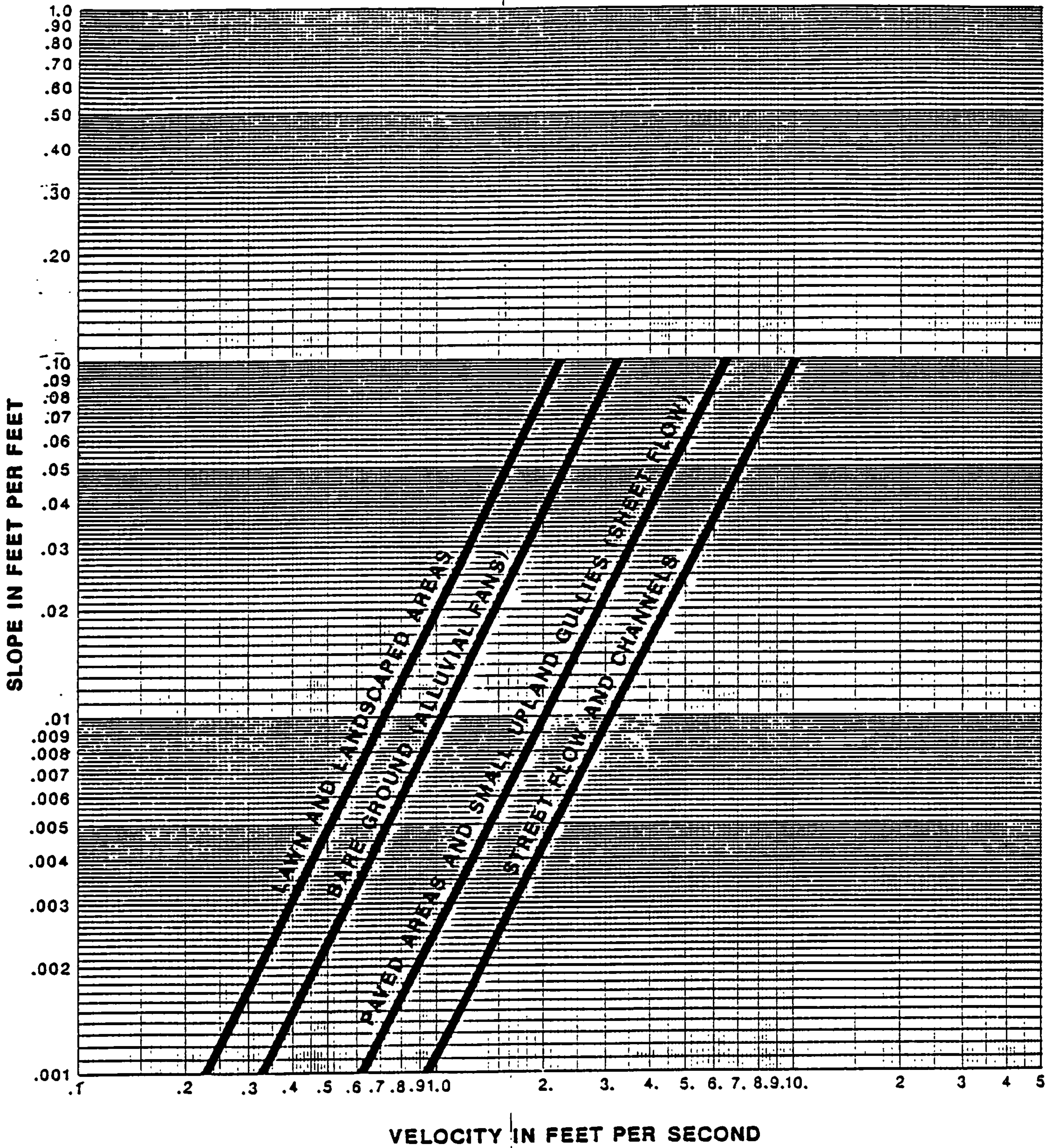


DRAINAGE CRITERIA

DETERMINATION OF RATIONAL FORMULA 'C' FACTOR



"GROUP B" SOIL FROM GEOTECHNICAL ENGINEERING EVALUATION BY WESTERN TECHNOLOGIES, INC.



VELOCITIES FOR UPLAND METHOD OF ESTIMATING T_c

Plate 22.2 B-1

5/88

REF. SCS NEH-4

4.4

PERCENT IMPERVIOUS FOR EXISTING BASINS

BASIN DESIGNATION	OVERALL AREA SF	PERVIOUS AREA * SF	IMPERVIOUS AREA SF	PERCENT IMPERVIOUS
A	2215	160	2055	92.8
B	3795	472	3323	87.6
C	20882	19009	1873	9.0
D	13449	12578	921	6.8

42-381 50 SHEETS 5 SQUARE
 42-382 100 SHEETS 5 SQUARE
 42-389 200 SHEETS 5 SQUARE



PERCENT IMPERVIOUS FOR
DEVELOPED BASINS

BASIN DESIGNATION	OVERALL AREA SF	PAVED AREA SF	ROOF AREA SF	LANDSCAPED AREA SF	PERCENT IMPERVIOUS
A	16952	11172	3094	2686	84.2
B	2258	102	0	2156	4.5
C	12030	5946	2303	3781	68.6
D	8760	6251	200	2309	73.6

$$\% I = \frac{\text{PAVED AREA} + \text{ROOF AREA}}{\text{OVERALL AREA}} (100\%)$$

42.381 50 SHEETS 5 SQUARE
42.382 100 SHEETS 3 SQUARE
42.389 200 SHEETS 3 SQUARE
MADE IN U.S.A.



SUBDIVISION BUENA VENTURA
 LOCATION NW CENTRAL & EUBANK
 DESIGN STORM 10 YR RECURRENCE INTERVAL.
 COMPUTATIONS BY LLP DATE SEPT 91
 SUBMITTED BY _____ DATE _____
 (Engineering Firm)

STORM DRAINAGE SPECIFICATIONS



Galloway, Romero & Associates
 Design Engineering Planning

14202 East Evans Avenue
 Aurora, Colorado 80014
 (303) 745 7448
 (303) 745-7480 Fax

PAGE _____ OF _____

RUNOFF COMPUTATIONS
 (Rational Method)

Design Point	Area Designation	A (Acres)	c	A·c̄	IA·c̄	t _c (min)	I (in/hr)	Q = (IA·c̄)·t cfs	Slope (S)	Length L (feet)	VEL ⁿ V (fps)	t (min)	Remarks
	A	0.051	0.895	0.046		10.0	3.43	0.16	1.4	45	2.2	0.35	USE 10.0 MIN.
													I = 2.16 (0.657) *3.43 I = 3.43
	B	0.087	0.825			10.0	3.43	0.25	2.1	140	4.5	0.5	USE 10.0 MINUTES
	C	0.479	0.38			10.0	3.43	0.62	2.0	240	4.4	0.9	USE 10.0 MIN
	D	0.310	0.37	0.115		10.0	3.43	0.39	2.0	240	4.4	0.9	USE 10.0 MIN

* These values must be substantiated with additional computations or use of appropriate charts, etc.

August, 1969

10 YEAR EXISTING

Form SD 1-3

A.7

SUBDIVISION BUENA VENTURA
 LOCATION NW CENTRAL & EUBANK
 DESIGN STORM 100 YR RECURRENCE INTERVAL
 COMPUTATIONS BY LLP DATE SEPT 91
 SUBMITTED BY _____ DATE _____
 (Engineering Firm)

STORM DRAINAGE SPECIFICATIONS



Galloway, Romero & Associates
 Design Engineering Planning

14202 East Evans Avenue
 Aurora, Colorado 80014
 (303) 745-7448
 (303) 745-7480 Fax

PAGE _____ OF _____

RUNOFF COMPUTATIONS
 (Rational Method)

Design Point	Area Designation	A (Acres)	c	A·c̄	IA·c̄	t _c (min)	I (in/hr)	Q = (ΣA·c̄)·I cfs	Slope (S)	Length L (feet)	VEL ⁿ V fps	t (min)	Remarks
	A	0.051	0.895	0.046		10.0	5.23	0.24					* T _c FROM 10YR EXISTING I = 2.16 · 2.42 = 5.23
	B	0.087	0.825	0.072		10.0	5.23	0.38					
	C	0.479	0.38	0.182		10.0	5.23	0.95					
	D	0.310	0.37	0.115		10.0	5.23	0.60					

* These values must be substantiated with additional computations or use of appropriate charts, etc.

A.8

SUBJECT 1011 BUENA VENTURA
 LOCALITY HNWC CENTRAL & EUBANK
 DESIGN STORM 10 YR RECURRENCE INTERVAL
 COMPUTATIONS BY DW DATE SEPT 91
 SUBMITTED BY _____ DATE _____
 (Engineering Firm)

STORM DRAINAGE SPECIFICATIONS



Galloway, Romero & Associates
 Design Engineering Planning

14202 East Evans Avenue
 Aurora, Colorado 80014
 (303) 745-7448
 (303) 745-7480 Fax

PAGE _____ OF _____

RUNOFF COMPUTATIONS
 (Rational Method)

Design Point	Area Designation	A (Acres)	c	A·c	IA·c	t ₀ (min)	I (in/hr)	Q _p (IA·c)·I cfs	Slope (S)	Length L (feet)	VEL ⁿ V fps	t (min)	Remarks
	A	0.389	0.800	0.311		10.0	3.43	1.07	2.75	158*	4.8	0.5	USE 10.0 MIN *ACROSS DRIVE
	B	0.052	0.360	0.019		10.0	3.43	0.07	5.5	20	1.6	0.2	USE 10.0 MIN
	C	0.276	0.680	0.188		10.0	3.43	0.64	6.0	37*	1.8	0.3	USE 10.0 MIN *ACROSS LANDSCAPE
	D	0.201	0.715	0.144		10.0	3.43	0.49	1.3	100	3.6	0.5	USE 10.0 MIN
	Σ A-D				0.662	10.0	3.43	2.27*	* FOR	COMPARISON			PURPOSES ONLY

* These values must be substantiated with additional computations or use of appropriate charts, etc.

August, 1989

10 YEAR DEVELOPED

Form SD 1-3

b.v.

SUBD 1011 BUENA VISTA
 LOCA 1 NWC CENTRAL & EUBANK
 DESIGN STORM 100 YR RECURRENCE INTERVAL
 COMPUTATIONS BY DLW DATE SEPT 91
 SUBMITTED BY _____ DATE _____
 (Engineering Firm)

STORM DRAIN... SPECIFICATIONS



Galloway, Romero & Associates

Design Engineering Planning

14202 East Evans Avenue
 Aurora, Colorado 80014
 (303) 745-7448
 (303) 745-7480 Fax

PAGE _____ OF _____

RUNOFF COMPUTATIONS
 (Rational Method)

Design Point	Area Designation	A (Acres)	c	A·c̄	IA·c̄	to (min)	I (in/hr)	Q = (IA·c̄)·I cfs	Slope (S)	Length L (feet)	VEL ⁿ V fps	t (min)	Remarks
	A	0.389	0.800	0.311		10.0	5.23	1.63					
	B	0.052	0.360	0.019		10.0	5.23	0.10					
	C	0.276	0.668	0.188		10.0	5.23	0.98					
	D	0.201	0.715	0.144		10.0	5.23	0.75					
	Σ A-D				0.662	10.0	5.23	3.46 *	*				FOR COMPARISON PURPOSES ONLY

* These values must be substantiated with additional computations or use of appropriate charts, etc.

100 YEAR DEVELOPED

4.10