HYDROLOGY B15/D1 3 PLANS

B15/D1

3 PLANS

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

B15 - D1

May 11, 1983

Mr. Gary Tibljas
Denney-Gross & Associates
2400 Comanche N.E.
Albuquerque, N.M. 87107

RE: DRAINAGE REPORT FOR COMMONS NORTH DEVELOPMENT

Dear Gary:

As we have discussed on several occasions, developing an acceptable drainage scheme is difficult. The area, although within the jurisdictional boundaries defined in the Drainage Ordinance, is much removed from any planned City drainage facilities and there is no existing public infrastructure to which runoff can be directed. Therefore, I feel that based on these facts the plans do outline an acceptable drainage solution for the site.

I would like to point out, however, that the pond adjacent to the restaurant does not meet the 15 ft. set-back requirements. You might want to place the facility further from the building in an effort to prevent foundation problems, unless a soils investigation determines that it can be located closer to the structure.

I appreciate you contacting this office prior to finalizing the drainage plan and allowing us to review the report. Please call if I can be of further assistance.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Name of Report Commons North
DR # B15-D1 Denney Groves

Action taken	Date of Action	Time in Between.
Rec'd.	4-28	
Initial response		

MUNICIPAL DEVELOPMENT DEPARTMENT

Richard S. Heller, P.E., City Engineer — ENGINEERING DIVISION — Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER

DRB Related Materials File

STATE OF NEW MEXICO
HIGHWAY DEPARTMENT

M - TECHNICAL SERVICES

BRUCE KING
GOVERNOR

COMMISSION
Louis M. Whitlock
Chairman, Carlsbad
James W. Chaney
Vice-Chairman, Moriarty
Sosimo Padilla
Secretary, Albuquerque
Carlos Gallegos
Member, Las Vegas
Stephen T. "Bud" Richards
Member, Las Cruces

DEPARTMENT
Chief Highway Administrator
J.J. Hewett

General Office
P.O. Box 1149
Santa Fe, NM
87504-1149
505-983-0100

District One Office
P.O. Box 231
Deming, NM
88031-0231
505-546-2603

District Two Office
P.O. Box 1457
Roswell, NM
88202-1457
505-622-8441

District Three Office
P.O. Box 3768-Station D
Albuquerque, NM
87109-3768
505-821-4651

District Four Office
P.O. Box 30
Las Vegas, NM
87701-0030
505-425-7527

District Five Office
P.O. Box 4127-Coronado Sta.
Santa Fe, NM
87502-4127
505-983-0221

AN EQUAL
OPPORTUNITY
EMPLOYER

March 12, 1982

Mr. Berent Groth
Architect
611 Sycamore Street, NE
Albuquerque, New Mexico 87106

Reference: Access to SR 46, Commons North

Dear Mr. Groth:

In reference to your letter of February 26, 1982, we offer the following comments:

1. It was our original recommendation that 30 feet of right of way along your proposed development be dedicated to the New Mexico State Highway Department. It is still our position, in line with our standard practice, that these 30 feet be dedicated.

2. The three turnouts to SR 46 with the 12' right turn lane as shown on your plans are satisfactory. Approval from our District office will be required prior to the construction of these turnouts.

3. This route is defined on the Long Range Major Street Plan as a Principal Arterial. In accordance with current practice, once this road is built to Principal Arterial Standards, a raised median will be placed and a median opening will be built at the intersection of SR 46 and Rio Grande Boulevard. Other possible median openings along this development could be built at the intersection of SR 46 and the middle and easternmost turnouts into the proposed development. Due to the proximity to the intersection of SR 46 and Rio Grande Boulevard, no median opening will be permitted in front of the westernmost turnout into the proposed development.

Very truly yours,

K. E. Bower, Jr., P.E.
Director of Technical Support

LLD:mmb

cc: Carl Serna
District 3
John Lucero, Planning Division, Albuquerque

WRS DEPT
766 4720
TECH SERVICES

DRB Related Materials File

STATE OF NEW MEXICO
HIGHWAY DEPARTMENT

TONEY ANAYA
GOVERNOR

COMMISSION

Louis M. Whitlock
Chairman, Carlsbad

James W. Chaney
Vice-Chairman, Moriarty

Sosimo Padilla
Secretary, Albuquerque

Max Maez, Jr.
Member, Springer

Stephen T. "Bud" Richards
Member, Las Cruces

DEPARTMENT

Chief Highway Administrator
L. A. Larranaga

General Office
P.O. Box 1149
Santa Fe, NM 87503
505-983-0100

District One Office
P.O. Box 231
Deming, NM 88030
505-546-2603

District Two Office
P.O. Box 1457
Roswell, NM 88201
505-622-8441

District Three Office
P.O. Box 3768-Station D
Albuquerque, NM 87110
505-821-4651

District Four Office
P.O. Box 30
Las Vegas, NM 87701
505-425-7527

District Five Office
P.O. Box 4127-Coronado Sta.
Santa Fe, NM 87503
505-983-0221

AN EQUAL
OPPORTUNITY
EMPLOYER

May 9, 1983

Mr. Gary Tibljas
Denney-Gross & Associates
2400 Comanche NE
Albuquerque, N.M. 87107

REF: Access to SR 46, Commons North

Dear Gary:

This is in response to the letter from Knight Seavey requesting confirmation that our finding that 30 feet of additional right-of-way along the proposed development be dedicated to the New Mexico State Highway Department, as per letter of March 12, 1982, from Kenneth E. Bower to Berent Groth.

The New Mexico State Highway Department Commission, at a special meeting on May 6, 1983, to review the Corrales Corridor Evaluation Supplemental Report, decided that the original recommended alternates, El Pueblo and Montano, plus some Transit System Management improvements for Corrales be the recommended alternates. With the information available at this point, we feel that the requested 30 foot of dedicated right-of-way for the proposed development is adequate.

Very truly yours,

Luis D. Duffy
Engineer of Technical Services

LDD:arm

cc: K. E. Bower
J. D. Winton

APPLICATION FOR SUBDIVISION

INSTRUCTIONS: PRINT OR TYPE IN BLACK INK ONLY. All attachments must be submitted with the application and, after folding, shall not exceed 8 1/2 x 14 inches.

1. Applicant's Name: Melkus-Ruele, Partners requests:

____ Sketch Plat ____ Preliminary Plat X Final Plat

____ Date Submitted ____ Date Submitted ____ Date Submitted

approval of the proposed Commons North Subdivision of

Lot(s): A-H and J-N Block(s): ____

in Subdivision/Addition/MRGCD Map Number: County Zoning Map #B15, MRGCD Map #22

Located generally: Northeast corner of Rio Grande Boulevard and Corrales Road N.W.

2. Description of the Request:

Number of lots proposed: 13 Total gross acres covered by request: 8.80

Proposed Use	Zoning	Total Net Acreage of Use
a. Restaurant	Special Use for Planned Development	1.36
b. Commercial	Special Use for Planned Development	3.14
c. Residential	R1	4.30
d.		

Other information: Bernalillo County Zoning Case #CZ-81-28 has approved site development plan. Copies of site plan are transmitted herewith.

DRB-83-222
Case #

3. APPLICANT INFORMATION:

Applicant's Mailing Address: 3721 Morris NE, Albuq., NM Zip Code: 87111

Phone: _____

Agent (if any): Gary W. Tibljas, P.E. Denney-Gross & Associates, Inc. Phone: 884-0696

Mailing Address: 2400 Comanche Rd, NE, Albuquerque, NM Zip Code: 87107

Ownership Interest in Property: N/A

4. REQUIRED ATTACHMENTS IN ACCORDANCE WITH SUBDIVISION ORDINANCE REQUIREMENTS
See Appropriate Checklist(s)

5. Signature of Applicant: Gary W. Tibljas, P.E., Agent Date: 4/20/83

If agent is used, attach applicant's authorization to act on the applicant's behalf regarding this request

****

PLANNING DIVISION INTERNAL USE ONLY

Application Received by: ROC Date: 4.20.83

Fee Paid: _____ Method of Payment: _____

Cross References: _____

1 copy each to:
Applicant
Secretary
Graphics

Meeting Date: 5.3.83

DRB. 83.222
Case # S- SC- SCS-

Map Number B.15

DENNEY - GROSS & ASSOCIATES, INC.
2400 COMANCHE ROAD N.E.
ALBUQUERQUE, N.M. 87107
TELEPHONE: (505) 884-0696

LETTER OF TRANSMITTAL

DATE 4/25/83	F.D. JOB NO. 644.11
ATTENTION Brian Burnett	
REASON Commons North	

TO Hydrology Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
APR 28 1983
ENGINEER

GENTLEMEN:

WE ARE SENDING YOU ☒ ATTACHED ☐ UNDER SEPARATE COVER VIA _____ THE FOLLOWING ITEMS:

☐ SHOP DRAWINGS ☐ PRINTS ☐ PLANS ☐ PROJECT ESTIMATE ☐ SPECIFICATIONS
☐ COPY OF LETTER ☐ CHANGE ORDER ☒ Drainage Management Study

COPIES	DATE	NO.	DESCRIPTION
3	4/83		Drainage Management Study

THESE ARE TRANSMITTED as checked below.

☒ FOR APPROVAL ☐ APPROVED AS SUBMITTED ☐ RETURN ____ COPIES FOR DISTRIBUTION
☐ FOR YOUR USE ☐ APPROVED AS NOTED ☐ RETURN ____ SIGNED ORIGINALS
☐ AS REQUESTED
☐ FOR REVIEW AND COMMENT ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

B15-D1 County zone map

COPY TO _____

SIGNED: Gary W. Tibljas, P.E.

GWT/lm

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE

SPEED - MEMO

PLANNING DIVISION | **CITY OF ALBUQUERQUE**

TO: Denny - Gross, agent for Mettus Rule

SUBJECT: DRB-83-222

INSTRUCTIONS:

Sender:
1. Write message on left.
2. Retain pink copy for your file.
3. Send white and yellow to addressee.

Recipient:
1. Write reply on right.
2. Retain yellow copy for your records.
3. Return white copy to originator.

MESSAGE:

Request that drainage plan be routed to hydrology office for review

Plat should indicate private drainage easements

SIGNED [signature] DATE 5-2-83

CITY ENGINEERING
AMAFCA DESIGNEE

REPLY:

SIGNED _____ DATE _____

DRAINAGE MANAGEMENT STUDY

COMMONS NORTH

Prepared For

Melkus-Reule Partners

APRIL 1983

RECEIVED
APR 28 1983
ENGINEERING

Prepared By

DENNEY-GROSS & ASSOCIATES, INC.

2400 Comanche Road, N.E.

Albuquerque, New Mexico 87107

DRAINAGE MANAGEMENT STUDY

COMMONS NORTH

Prepared For

Melkus-Reule Partners

APRIL 1983

Prepared By

DENNEY-GROSS & ASSOCIATES, INC.

2400 Comanche Road, N.E.

Albuquerque, New Mexico 87107

I, Gary W. Tibljas, hereby certify that the enclosed documents and drawings were prepared under my supervision and are true and correct to the best of my knowledge and belief.

Gary W. Tibljas

New Mexico Professional Engineer No. 8117

GARY W. TIBLJAS
NEW MEXICO
8117
REGISTERED PROFESSIONAL ENGINEER

COMMONS NORTH

DRAINAGE MANAGEMENT STUDY

I. PURPOSE:

The purpose of this report is to explore the various alternatives for storm water management within the limits of subject project.

II. GENERAL:

Commons North is located at the northeast corner of Rio Grande Boulevard N.W., and Corrales Road N.W., as illustrated on Exhibit I contained herein. The development consists of 8.80 acres and has essentially ground slopes well below 0.5 percent in any direction. The utilization of any free discharge solutions is not practicle due to the topography; therefore, storm water generated on-site will be conveyed to specific ponding areas within the development. The site is not located within a flood plain (see Exhibit II) per the HUD Federal Insurance Administration Analysis.

III. HYDROLOGY & HYDRAULICS:

Drainage Area A

Total Area: 41,250 SF

Total Impervious Area: 25,000 SF 61%

Area within SCS Class BS - Group A = 13,000 SF

Area within SCS Class GB - Group B = 28,250 SF

(See Exhibit III for soil classifications)

C_{comp} = [(0.49)(13,000) + (0.63)(28,250)]/(41,250)

= 0.59 DPM 22.2 C-1

Required Pond Volume : [(2.2)(0.59)(41,250)]/(12)

= 4,462 cf

Volume Provided: 4,464 cf

For pond details see Plates B & C

Curb & Sidewalk Cut for Rundown to Pond A:

Longest Path: 235 ft.

Slope: 0.003

Velocity: 0.75 fps DPM 22.2 B-1

Tc = [(235)/(0.75x60)] = 5.2 min. Use 10.0 min.

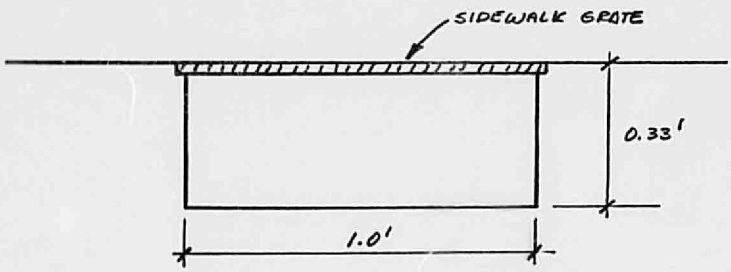
I_{100} = (2.15)(2.2) = 4.73 in/hr DPM 22.2 D-2

$Area_A$ = 41,250 SF (0.95 Ac.)

C_{comp} = 0.59

Q_{100} = (4.73)(0.59)(0.95) = 2.65 cfs

Size Curb & Sidewalk Rundown Structures for Pond A



A = 0.33 SF P = 1.67 ft.

R = (A/P) = (.33/1.67) = 0.20

n = 0.15 (concrete) S = (2.5/10) = 0.25

$Q = (1.486/0.015)(0.20)^{2/3}(0.25)^{1/2}(0.33)$

= 5.65 cfs > 2.65 cfs O.K.

Drainage Area B

Total Area: 20,500 SF

Total Impervious Area: 13,000 SF 63%

Area within SCS Class BS - Group A = 4,500 SF

Area within SCS Class GB - Group B = 16,000 SF

C_{comp} = [(0.51)(4500) + (0.65)(16,000)]/(20,500)

= 0.62 DPM 22.2 C-1

Required Pond Volume: [(2.2)(0.62)(20,500)]/(12)

= 2,330 cf

Pond B:

Top Area: 1,750 SF

Bottom Area: 1,500 SF

Average Area: (1625 SF)(1.5 ft.) = 2,438 cf

Drainage Area C

Total Area: 75,000 SF

Total Impervious Area: 42,000 SF 56%

Area within SCS Class BS - Group A = 68,750 SF

Area within SCS Class AF - Group B = 6,250 SF

C_{comp} = [(0.46)(68,750) + (0.61)(6,250)]/(75,000)

= 0.47 DPM 22.2 C-1

Required Pond Volume: [(2.2)(0.47)(75,000)]/(12)

= 6,463 cf

Volume Provided: 6,492 cf

See Plates B & C for Pond Details

Drainage Area D

Total Area: 56,500 SF

Total Impervious Area: 31,500 SF 56%

Area within SCS Class AF - Group B - 46,500 SF

Area within SCS Class BS - Group A - 10,000 SF

C_{comp} = [(0.46)(10,000) + (0.61)(46,500)]/(56,500)

= 0.58 DPM 22.2 C-1

Required Pond Volume: [(2.2)(0.58)(56,500)]/(12)

= 6,008 cf

See Plates B & C for Pond Details

Drainage Area E

Total Area: 18,250 SF

Total Impervious Area: 0 SF

Area within SCS Class AF - Group B = 18,250 SF

C = 0.34 DPM 22.2 C-1

Required Pond Volume: [(2.2)(0.34)(18,250)]/(12)

= 1,138 cf

Pond E:

Top Area: 4,000 SF

Bottom Area: 2,500 SF

Average Area: (3250 SF)(0.5 ft.) = 1,625 cf

Drainage Area F

Total Area: 63,025 SF

Total Impervious Area: 9,075 SF 14%

Area within SCS Class AF - Group B = 31,025 SF

Area within SCS Class BS - Group A = 29,500 SF

Area within SCS Class GB - Group B = 2,500 SF

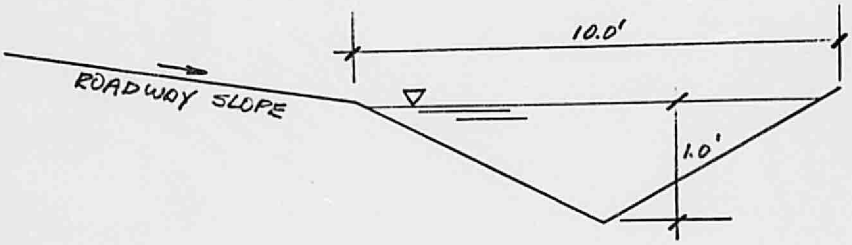
C_{comp} = [(0.23)(29,500) + (0.40)(31,025) + (0.40)(2500)]/(63,025)

= 0.32 DPM 22.2 C-1

Required Pond Volume: In an attempt to keep the roadway as dry as possible during periods of precipitation the roadway will drain to the north to roadside bar ditches as illustrated on Plate A.

Volume Required: [(2.2)(0.32)(63,025)]/(12)

= 3,697 cf



Total Depth of Bar Ditches: 690 ft.

Area of Bar Ditch Cross Section: 5.5 SF

Total Holding Capacity: (5.5)(690) = 3,795 cf

Drainage Area G

Total Area: 108,803 SF

Total Impervious Area: 9,075 SF 8%

Area within SCS Class GB - Group B = 11,803 SF

Area within SCS Class BS - Group A = 35,000 SF

Area within SCS Class AF - Group B = 62,000 SF

C_{comp} = [(0.20)(35,000) + (0.37)(11,803) + (0.37)(62,000)]/(108,803)

= 0.32 DPM 22.2 C-1

Required Pond Volume: [(2.2)(0.32)(108,803)]/(12)

= 6,383 cf

Drainage Area G will drain to the rear of the residential lots. Therefore, the total pond volume will be prorated between each lot as all are similar in size as follows:

(6,383 cf)/(6 lots) = 1,064 cf/lot

Ponds will approximate the following sizes:

Top Area: 120' x 20' = 2,400 SF

Bottom Area: 116' x 16' = 1,856 SF

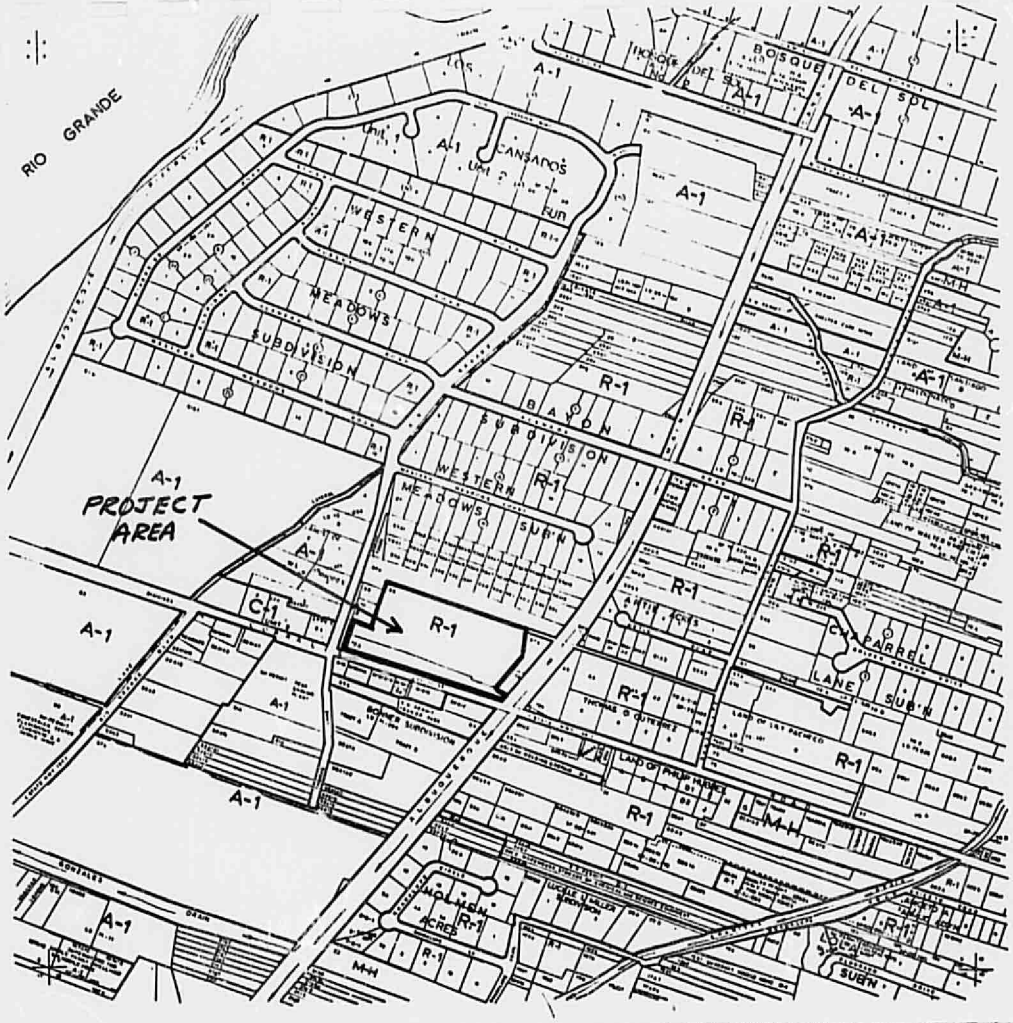
Average Area: 2,128 SF

Volume Provided: (2,128 SF)(0.5 ft.) = 1,064 cf

IV. CONCLUSIONS:

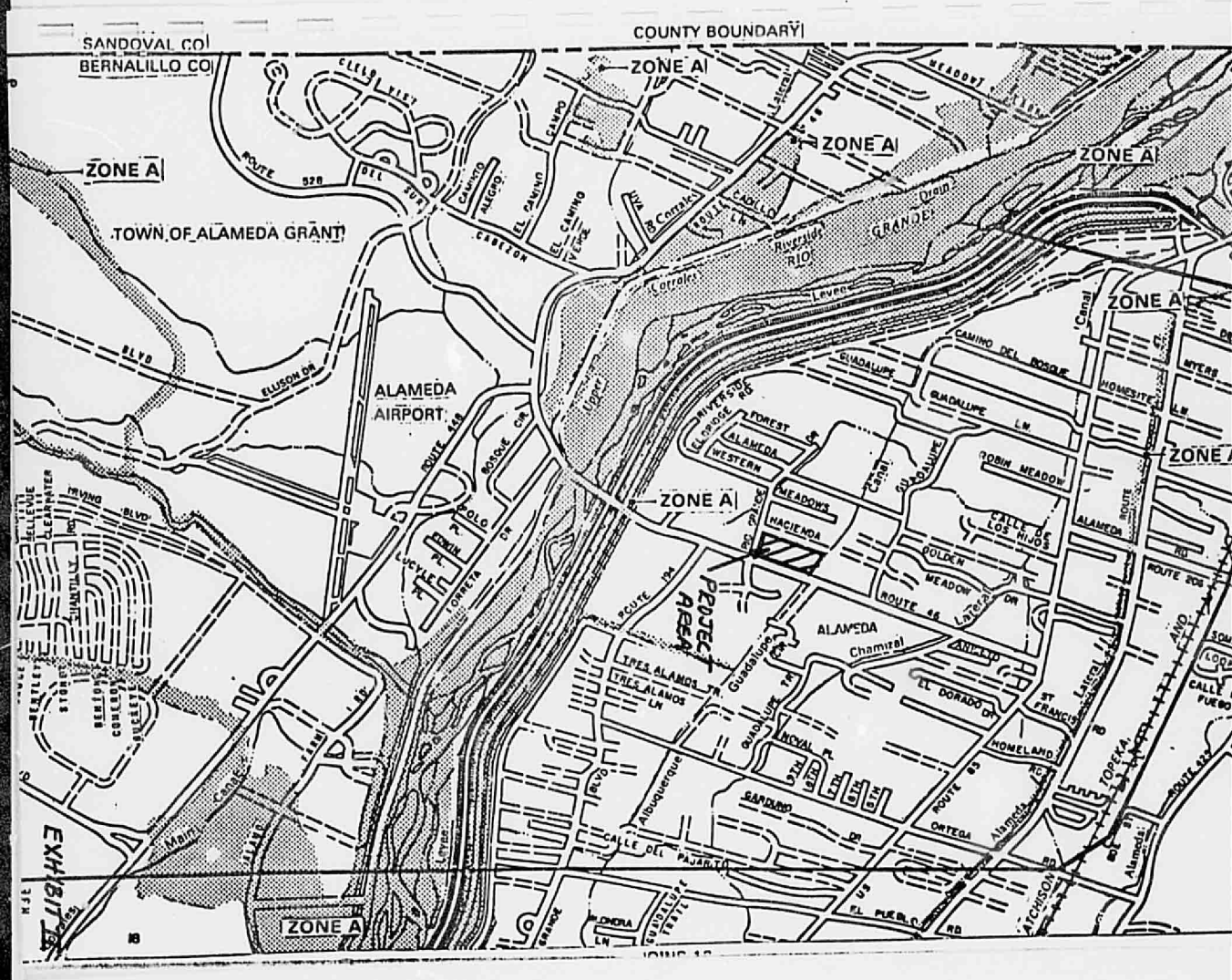
The material contained herein demonstrates a storm water management scheme which will provide the development with a practical and effective plan for handling storm water runoff during times of precipitation.

Therefore, approval of this plan is respectfully solicited.



B-15-Z

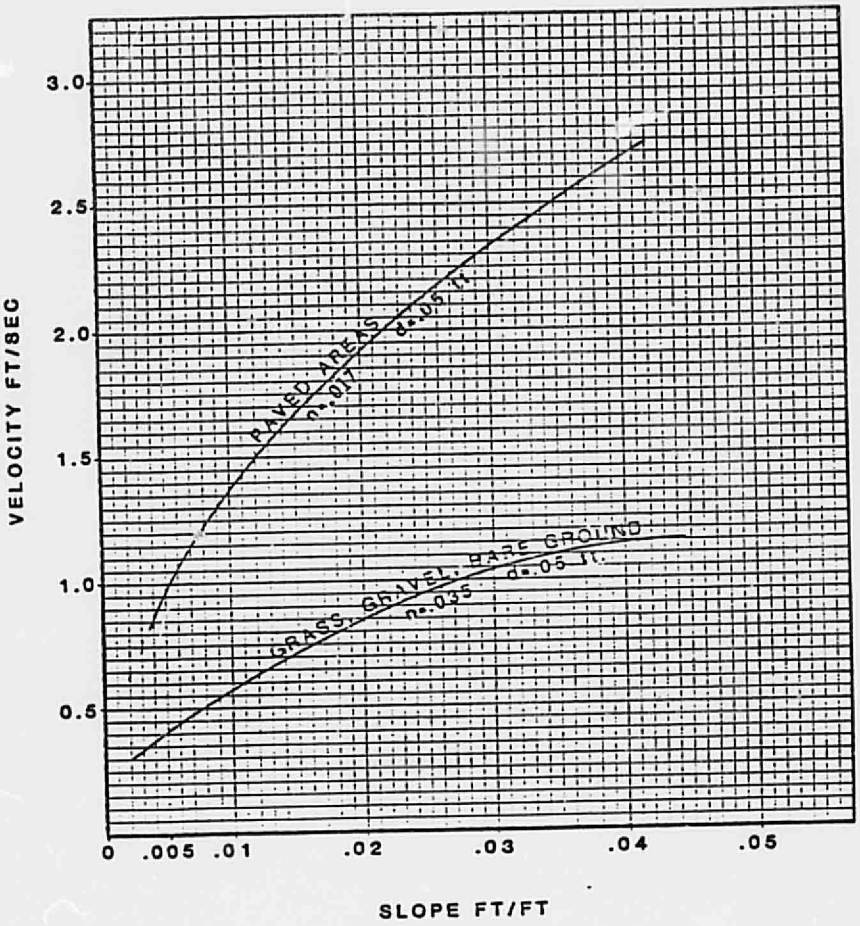
EXHIBIT I


COUNTY BOUNDARY
SANDOVAL CO
BERNALILLO CO
ZONE A
TOWN OF ALAMEDA GRANT
ALAMEDA AIRPORT
PROJECT AREA
ALAMEDA
RIO GRANDE
Riverside Drain
Levee
Canal
Corrales
ROUTE 528
ROUTE 448
ROUTE 46
ROUTE 95
ROUTE 206
ELUSON DR
IRVING BLVD
CAMINO DEL BOSQUE
GUADALUPE
HOMESITE
MYERS
ROBIN MEADOW
CALLE DE LOS NIÑOS
GOLDEN MEADOW
EL DORADO
HOMELAND
ORTEGA
SARDUNO
CALLE DEL PAJARITO
EL PUEBLO
TRES ALAMOS
NOVAL
HACIENDA
MEADOWS
FOREST
WESTERN
RIVERSIDE
ANDALUCIA
Chamizal
ST FRANCIS
TOPEKA
ATCHISON
Alameda
EXHIBIT

BERNALILLO COUNTY, AND PARTS OF SANDOVAL AND VALE

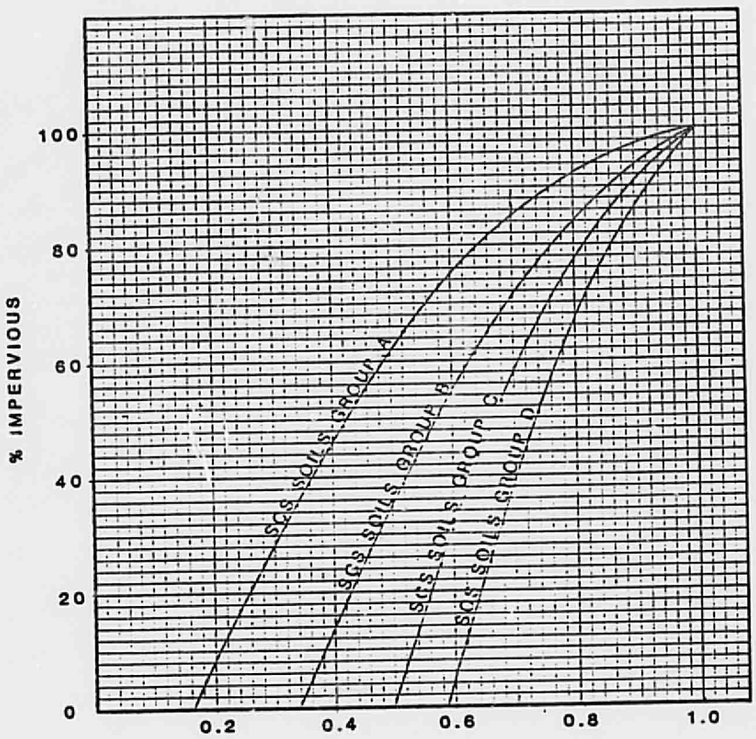
OVERLAND FLOW SEGMENTS

VELOCITY DETERMINATIONS FOR Tc CALCULATIONS

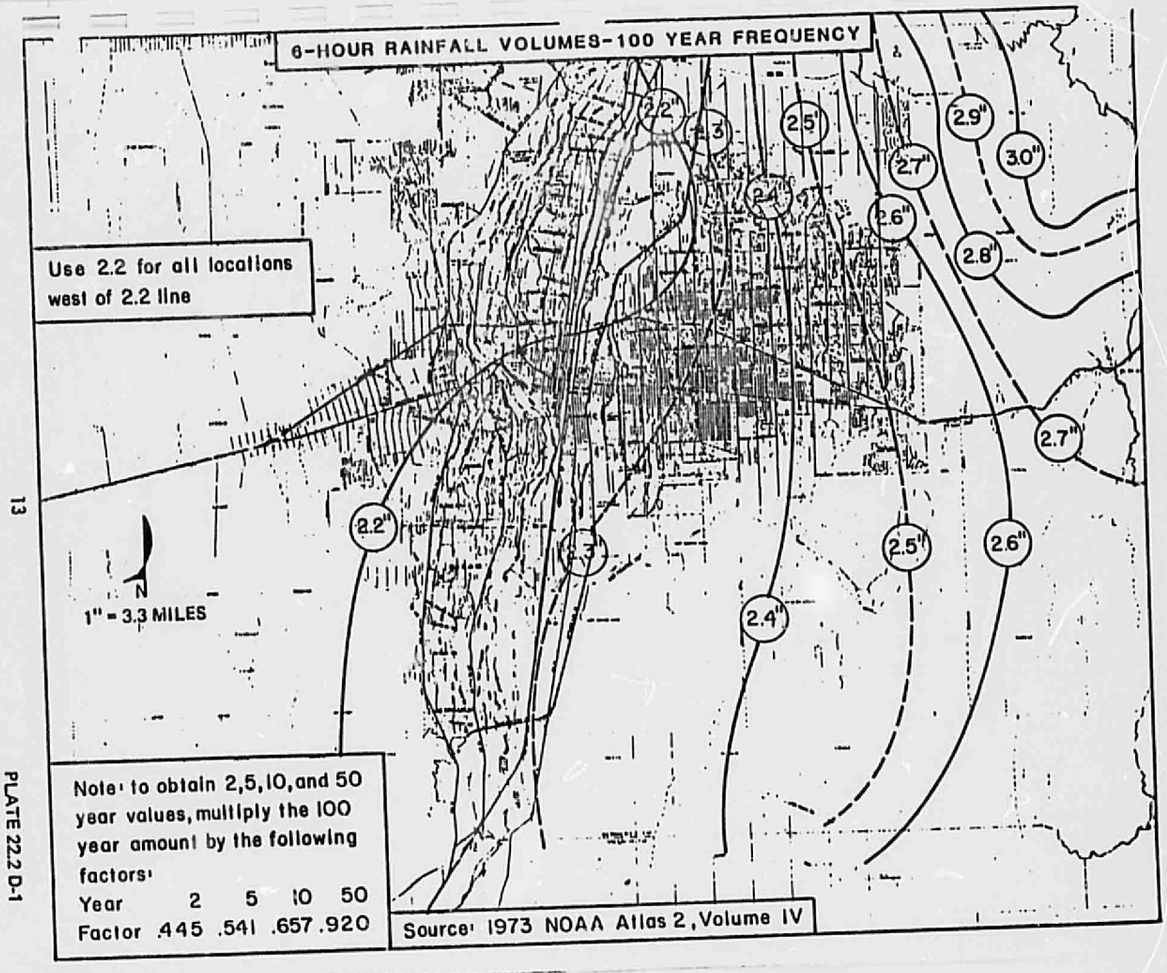


DRAINAGE CRITERIA

DETERMINATION OF RATIONAL FORMULA 'C' FACTOR

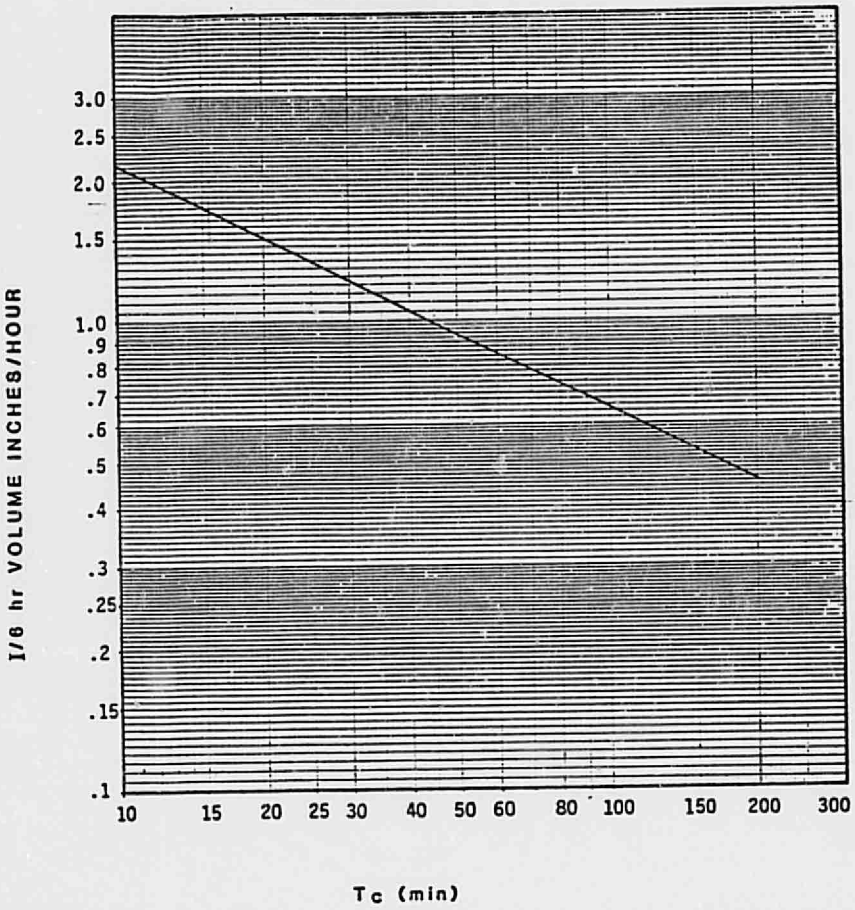


'C' FACTOR


6-HOUR RAINFALL VOLUMES-100 YEAR FREQUENCY
Use 2.2 for all locations west of 2.2 line
2.2"
2.3
2.4"
2.5"
2.6"
2.7"
2.8"
2.9"
3.0"
N
1" = 3.3 MILES
Note: to obtain 2,5,10,and 50 year values, multiply the 100 year amount by the following factors:
Year 2 5 10 50
Factor .445 .541 .657 .920
Source: 1973 NOAA Atlas 2, Volume IV

DIMENSIONLESS RAINFALL INTENSITIES

$I = (6\text{-hr. rain})6.84\ t_c^{-0.51}$



note: To get actual intensities, multiply rainfall volume from plate D-1 by value from curve. Use reduction factors on Plate D-1 for other than 100-yr.