HYDROLOGY E20/D22 FOUR PLANS

E20/D22

4 PLANS

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

May 19, 1986

Lee Bell
DMJM
5700 Harper Drive, NE
Albuquerque, New Mexico 87109

RE: DRAINAGE PLAN REVISION OF TORREY PINES (E-20/D22)
RECEIVED MAY 13, 1986 FOR FINAL PLAT APPROVAL

Dear Mr. Bell:

The above referenced submittal, drawings revised May 12, 1986, is approved for Platting purposes. I believe the proposed spot elevation of 70.2 between Lots 67B and 94B is in error to provide drainage to the south. A separate retaining wall permit will be required for proposed retaining walls.

If you have any questions, call me at 766-7644.

Cordially,

Roger A. Green, PE

Roger A. Green, P.E.
C.E./Hydrology Section

RAG/bsj

DMJM

RECEIVED
MAY 13 1986
HYDROLOGY SECTION

May 9, 1986

Mr. Carlos A. Montoya, P. E.
City/County Flood Plain Administrator
City of Albuquerque
Design Hydrology Section
P. O. Box 1293
Albuquerque, NM 87103

RE: Drainage Plan for Torrey Pines - DMJM 4601-25-01
(E-20/D22)

Dear Mr. Montoya:

In response to your letter dated May 7, 1986 and our telephone conversation on May 9, 1986, I submit the following answers to your questions:

1. All spot elevations and flow arrows will be shown on top. The pond is in reality a temporary dike for erosion protection.

2. All street elevations shown are top of curb.

3. Private drainage easements are provided on the final plat for Lots 24B to 30B and Lots 31B to 35B. Lots 1B to 8B, drain into the Pino Arroyo. This arroyo is fully developed, landscaped with grass and maintained by the Homeowners Association.

4. Lots 9B to 14B, drain along Village Green Road and enter the Pino Arroyo. How?

5. Will do.

6. Some arrows point upstream. Will be corrected.

7. Grass swales from common areas will drain over sidewalks and curb and gutter. These sidewalks are on private property and owned by the Homeowners Association.

Daniel, Mann, Johnson, & Mendenhall
Suite 280, 5700 Harper Drive, N.E.
Albuquerque, New Mexico 87109
Telephone: 505/822-7955

Planning
Engineering
Systems
Economics

Carlos A. Montoya
DMJM 4601-25-01
05-09-86

8. This fifteen (15) foot minimum width for grass swales is being revised with this updated drainage plan. Between Lot 71B and retaining wall is the high point in the drainage pattern and will cause no problems. Drainage is directed between Lots 62B and 64B, thus minimumizing the drainage flow between pool and Lot 59B.

9. Tract 162J is a access easement to Lots 67B to 69B. This will be all driveway and will drain to the street.

10. These easements are shown on the Final Plat.

~~I will meet with you on May 12, 1986 at 2:00 P.M. in your office.~~ If you have additional questions, please call me.

Sincerely,

Lee Bell

Lee Bell

LB/dt

DMJM

PROJECT TITLE: TORREY PINES @ TANDAN ZONE ATLAS/DRNG. FILE #: E-20/D22

LEGAL DESCRIPTION:

CITY ADDRESS: VENTURA @ ACADEMY

ENGINEERING FIRM: D.M.J.M. CONTACT: Lee Bell

ADDRESS: 5700 Harper N.E. Suite 280 PHONE: 822-7955

OWNER: Ameri West Corporation CONTACT: John Millick

ADDRESS: 625 Silver S.W. Suite 200 PHONE: 242-3330

ARCHITECT: N/A CONTACT:

ADDRESS: PHONE:

SURVEYOR: N/A CONTACT:

ADDRESS: PHONE:

CONTRACTOR: N/A CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

___YES

___NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

RECEIVED MAY 13 1986 HYDROLOGY SECTION

DPB NO. 86-219 ; V-86-[redacted]44

EPC NO. N/A

PROJ. NO. 2871

TYPE OF SUBMITTAL:

___DRAINAGE REPORT

X DRAINAGE PLAN UPDATE

___CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN UPDATE

___EROSION CONTROL PLAN

___ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___SKETCH PLAT APPROVAL

___PRELIMINARY PLAT APPROVAL

___SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___BUILDING PERMIT APPROVAL

___FOUNDATION PERMIT APPROVAL

___CERTIFICATE OF OCCUPANCY APPROVAL

___ROUGH GRADING PERMIT APPROVAL

___GRADING/PAVING PERMIT APPROVAL

___OTHER _____ (SPECIFY)

DATE SUBMITTED: 4/25/86 5/13/86

BY: Lee Bell Lee Bell

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7544

May 7, 1986

Lee Bell
DMJM
5700 Harper Drive, NE
Albuquerque, New Mexico 87109

RE: DRAINAGE PLAN FOR TORREY PINES (E-20/D22)
RECEIVED APRIL 28, 1986

Dear Mr. Bell:

I have reviewed the referenced plan and forward the following comments:

1. Please delete spot elevations, ponds, and arrows which conflict with the proposed development. An example would be a new spot elevation next to a pervious spot elevation. This causes confusion in the review and construction process.

2. Are the street elevations top of curb or flow line elevations?

3. Private drainage easements appear to be needed behind the following lots for cross lot drainage. The lots are 23A to 30B; 31B to 35B; 1B to 4B; and 5B to 8B.

4. How are Lots 9B thru 14B rear yards going to drain to the Pino Arroyo. Also, please address erosion.

5. The retaining walls should indicate bottom and top of wall elevations.

6. The arrows are drawn wrong for the rear yards of Lots 67B to 69B and 71B to 73B.

7. How are the grass swales going to enter the private streets.

[redacted]

8. The previous report indicated a 15 foot minimum width for the grass swales. I have located same areas where the width has not been followed. The following areas are between Lot 60B and pool and between Lot 71B and retaining wall. Please review the plan for other locations.

9. Please review the grading between Lots 66B and 69B.

10. The DRB plat does not show the 20 foot drainage behind Lots 23A to 30B and 31B to 35B as shown on the drainage plan.

If you have any questions, call me at 766-7644.

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

DRAINAGE INFORMATION SHEET

PROJECT TITLE: TORREY PINES @ TANDAM ZONE ATLAS/DRNG. FILE #: E-20/D22

LEGAL DESCRIPTION:

CITY ADDRESS: VENTURA @ ACADEMY

ENGINEERING FIRM: D.M.J.M. CONTACT: Lee Bell

ADDRESS: 5700 Harper N.E. Suite 280 PHONE: 822-7955

OWNER: Ameri West Corporation CONTACT: John Millick

ADDRESS: 625 Silver S.W. Suite 200 PHONE: 242-3330

ARCHITECT: N/A CONTACT:

ADDRESS: PHONE:

SURVEYOR: N/A CONTACT:

ADDRESS: PHONE:

CONTRACTOR: N/A CONTACT:

ADDRESS: PHONE:

RECEIVED APR 28 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING

___YES

___NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 86-219 ; V-86-[redacted]44

EPC NO. N/A

PROJ. NO. 2871

TYPE OF SUBMITTAL:

___DRAINAGE REPORT

X DRAINAGE PLAN UPDATE

___CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN UPDATE

___EROSION CONTROL PLAN

___ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___SKETCH PLAT APPROVAL

___PRELIMINARY PLAT APPROVAL

___SITE DEVELOPMENT PLAN APPROVAL

___FINAL PLAT APPROVAL

___BUILDING PERMIT APPROVAL

___FOUNDATION PERMIT APPROVAL

___CERTIFICATE OF OCCUPANCY APPROVAL

___ROUGH GRADING PERMIT APPROVAL

___GRADING/PAVING PERMIT APPROVAL

___OTHER _____ (SPECIFY)

DATE SUBMITTED: 4/25/86

BY: Lee Bell

D.R Case No.86-219
D.R.C. Project No. 2871
Date Submitted 4/09/86

EXHIBIT "D"
TO
SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.)
REQUIRED INFRASTRUCTURE LISTING

FOR TORREY PINES AT TANOAN

Following is a summary of Public/Private Infrastructure requied to be constructed or financially guaranteed to be constructed for the above development.

Size	Type Improvement	Location	From	To
Std	Curb and Gutter	Wilmington	Close leg to East	–
Std	Curb and Gutter remove portion of exsisting driveways construct new curb as required	Ironshore	Canterbury	Dorado Beach
8"	San Sewer	Wilmington	Close leg to East	
4'	Manhole	Wilmington	At end of street	
4"	Sewer Services	Wilminmgton	At end of street	
6"	Water Main	Wilmington	Close leg to East	
	Water Services	Wilmington	At end of street	
	Retaining Wall	At Rear P.L.	Lots 81B to 85B	

Prepared by: Lee Bell 4/25/86

Print Name: Lee Bell

Firm: DMJM/NEW MEXICO

RECEIVED
APR 28 1986
HYDROLOGY SECTION

* *

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

Traffic Date WUD Date Parks & Rec. Date

City Engineer/AMAFCA Date DRB Chairman Date

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: E-20/1022 DATE: 4/9/86 @ 2:00

PLANNING DIVISION NOS: EPC: _____ DRB: 86-219

SUBJECT: Torrey Pine @ Tanoan

STREET ADDRESS (IF KNOWN): Ventura & Academy

SUBDIVISION NAME: _____

APPROVAL REQUESTED:

____	PRELIMINARY PLAT	____	FINAL PLAT
____	SITE DEVELOPMENT PLAN	____	BUILDING PERMIT
X	OTHER replat	____	ROUGH GRADING

	WHO	REPRESENTING
ATTENDANCE:	Lee Bell	DMJM
	Billy Goolsby	Design Hydro.

FINDINGS:

① Updated grading & drainage plan will be required to keep file current.

② Any newly required easements and or infrastructures (Public & Private) shall be indicated on the plan and corresponding plat

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	Billy J. Goolsby	SIGNED:	[illegible]
TITLE:	CET Hydrology	TITLE:	[illegible]
DATE:	4/9/86	DATE:	[illegible]

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

File w/
E20-D22

DMJM/Adam, Hamlyn, Anderson

October 09, 1984

City of Albuquerque, Hydrology
PO Box 1293
Albuquerque, NM 87103

Attn: Mr. Fred Aguirre

Re: Torrey Pines @ Tanoan DMJM Job #4603-03-01

Dear Sir:

The replat DRB-84-699 is to extend lots on the ends of building groups by approximately five feet. Those lots which would have extended into swales as shown on the grading plan were not replatted. The drainage scheme as detailed in the drainage report will not be affected by the replat.

A private drainage easement parallel to lot 22-A has been added to the replat. During grading operations a 4 inch PVC pipe was found, extending westerly, under an existing yard wall on the east boundary of Torrey Pines. Discussion with the home owner revealed that the pipe was draining the rear yard and the jacuzzi of lot 16, Village Greens West. AmeriWest has accepted the responsibility of re-routing the pipe through the easement formed by this plat to an existing catch basin in Village Greens Drive. A "S.O.19" is being routed thru the City Engineers' office for this work.

The existing AMAFCA easement and 100 year flood plain have been shown on the replat. A request for map amendment will be submitted to your office in October, 1984.

Sincerely,

Jean J. Bordenave, PE

JJB/ccl

A Division of
Daniel, Mann, Johnson, & Mendenhall

Suite 260
5700 Harper Drive, N.E.
Albuquerque, New Mexico 87109
Telephone: 505/822-7955

Planning
Engineering
Systems
Economics

INFORMATION SHEET

PROJECT TITLE Torrey Pines @ Tanoan TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS NE corner of Academy Rd. & Ventura Street

LEGAL DESCRIPTION Tract "C" of Summary Plat of Tanoan Properties

ENGINEERING FIRM DMJM CONTACT Jean J. Bordenave

ADDRESS 4055 Montgomery Blvd. NE PHONE 881-1808

OWNER Heritage Homes CONTACT Cleve Matthews

ADDRESS PO Box 25000, Albuq. PHONE 883-3450

ARCHITECT Barry A. Berkus CONTACT Barry Berkus

ADDRESS 223 E Dela Guerra St. Santa Barbara, CA PHONE (805)963-8901

SURVEYOR DMJM/Adam,Hamlyn,Anderson CONTACT Walter T. Richards

ADDRESS 4055 MOntgomery Blvd. NE PHONE 881-1808

CONTRACTOR ____ CONTACT ____

ADDRESS ____ PHONE ____

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER ____ (SPECIFY)

DATE SUBMITTED: May 18, 1984

BY: Jean J Bordenave

Shown hereon is the Existing AMAFCA Easement and the Flood Plain Shaded

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

April 23, 1984

Mr. Jake Bordenave
DMJM/Adam, Hamlyn, Anderson
4055 Montgomery Boulevard NE
Albuquerque, NM 87109

RE: TORREY PINES AT TANOAN DRAINAGE REPORT E20-D22

Dear Mr. Bordenave:

The review of the drainage report for the aforementioned subdivision has generated the following comments or concerns regarding the subdivision which must be resolved prior to Plat sign-off.

1. The hydrology calculations are all in order and the City has no objection to the discharge points or rates of discharge, specifically the Harper Road outfall.

2. The City will require one set of the hydraulic calculations and construction drawings for the reach of the Pino Arroyo flowing thru the subdivision to forward to FEMA for a Flood Map Amendment. Prior to the FEMA approval the Flood Plain must be shown on the Plat along with "shading" indicating the 100 year flood plain. Upon concurrence by FEMA of the new flood plain the easement can then be reduced.

3. The drainage dedication must be revised to indicate dedication for maintenance to the Homeowner's Association and to the private lot owners to convey flows. The common tracts and the access roads must be covered by this dedication.

4. The outfall to Harper Road is greater than the standard 24 inch wide sidewalk grate, but this can be resolved with a special detail and should not hold up the plat.

5. Outfall details to the Pino must also be detailed and resolved prior to plat sign-off.

6. Please be advised that all the private and public infrastructures quarantee must be provide to the City prior to City Engineer plat sign-off. Specifically the public utilities, private roads, private drainage channel and private drainage outfalls in Public ROW or Arroyo.

7. The required improvements necessary for this development which is part of SAD 205 must be quaranteed prior to platting, specifically:
   a. Paving, sidewalks, curb and gutter along Ventura.
   b. Channel improvement of Pino Arroyo thru the subdivision and required upstream system treatments.
   c. The prorated share of the bridge at the Pino Arroyo on Ventura and any other infrastructures determined by SAD 205, Resolution 3 pertinent to this development.

Plese contact me if you require any information on these comments or concerns.

Very truly,

Andre Houle
Civil Engineer/Design Section

AH/dlw

cc: C. Dwayne Sheppard, City Engineer
Fred Aguire, Design Hydrologist
Q.A. File

INFORMATION SHEET

PROJECT TITLE Torrey Pines @ Tanoan TYPE OF SUBMITTAL Grading & Erosion Control

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS NE corner of Academy Rd. & Ventura Street

LEGAL DESCRIPTION Tract "C" of Summary Plat of Tanoan Properties

ENGINEERING FIRM DMJM/Adam,Hamlyn,Anderson CONTACT Jean J. Bordenave

ADDRESS 4055 Montgomery Blvd. NE PHONE 881-1808

OWNER Heritage Homes CONTACT Cleve Matthews

ADDRESS PO Box 25000, Albuq. PHONE 883-3450

ARCHITECT Barry A. Berkus CONTACT Barry A. Berkus

ADDRESS 223 E. Dela Guerra St. Santa Barbara, CA PHONE (805)963-8901

SURVEYOR DMJM/Adam,Hamlyn,Anderson CONTACT Walter T. Richards

ADDRESS 4055 Montgomery Blvd. NE PHONE 881-1808

CONTRACTOR _____ CONTACT _____

ADDRESS _____ PHONE _____

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
X ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 4/12/84

BY: Charles Burns

WILSON
& COMPANY
ENGINEERS
ARCHITECTS

505 262-2116

Office Location... 1921 SAN PEDRO N.E. ▪ ALBUQUERQUE, NEW MEXICO 87110

Mailing Address... P.O. BOX 3548 ▪ ALBUQUERQUE, NEW MEXICO 87190

ENGINEERS
ARCHITECTS
PLANNERS

An Equal Opportunity Employer

April 6, 1984

RECEIVED
APR 06 1984
CITY ENGINEER

Mr. Jim Hicks
Engineering Division
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: S.A.D. No. 210
Drainage - Harper Rd.
WCEA File: 82-502

Dear Jim:

While discussing the runoff from Area H-1 with Jake Bordenave, it appears the portion of Harper Rd. that is causing a problem is from Sta. 65+00 to Sta. 67+00. Since there is a left hand turn bay in this location, I do not believe we would be violating the one lane dry criteria if we would allow 10.4 cfs to flow in the east-bound roadway. It is my recommendation 10.4 cfs per 10 year storm be accepted at the intersection of Harper Rd. and Layton Ave.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

-sap

INFORMATION SHEET

PROJECT TITLE Torrey Pines @ Tanoan TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS NE corner of Academy Rd. & Ventura Street

LEGAL DESCRIPTION Tract "C" of Summary Plat of Tanoan Properties

ENGINEERING FIRM DMJM CONTACT Jean J. Bordenave

ADDRESS 4055 Montgomery Blvd. NE PHONE 881-1808

OWNER Heritage Homes CONTACT Cleve Matthews

ADDRESS PO Box 25000, Albuq. PHONE 883-3450

ARCHITECT Barry A. Berkus CONTACT Barry Berkus

ADDRESS 223 E Dela Guerra St. Santa Barbara, CA PHONE (805)963-8901

SURVEYOR DMJM/Adam,Hamlyn,Anderson CONTACT Walter T. Richards

ADDRESS 4055 MOntgomery Blvd. NE PHONE 881-1808

CONTRACTOR CONTACT

ADDRESS PHONE

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 4/6/84

BY: Jean J Bordenave

RECEIVED
APR 09 1984
HYDROLOGY SECTION

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

READING FILE

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

April 3, 1984

Mr. Jake Bordenave
DMJM/AHA
4055 Montgomery Blvd. NE Suite A
Albuquerque, New Mexico 87109

RE: ROUGH GRADING PLAN APPROVAL (E20-D22)
RECEIVED MARCH 23, 1984

Dear Jake:

The above referenced submittal is not sufficient for approval. When I spoke with you earlier I thought there had been an approval for the concept of drainage. There is nothing in our files with regard to drainage. There is a copy of a letter, dated February 21, 1984, from Bernie Montoya to Mr. Allen Whitesel indicating that a Conceptual Plan is required for rough grading.

Another matter of concern is the discharge of flows to Harper Road. This concern will need to be addressed with regard to the allowable discharge to Harper Road and resolved prior to approval of the final drainage report.

Should you have any questions or comments, please contact me at 766-7644.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, P.E.
City/County Flood Ordinance Administrator

BJG/ca

WILSON
& COMPANY
ENGINEERS &
ARCHITECTS

Office Location... 1321 SAN PEDRO N.E. ▪ ALBUQUERQUE, NEW MEXICO 87110

Mailing Address... P.O. BOX 3548 ▪ ALBUQUERQUE, NEW MEXICO 87190

RECEIVED
MAR 26 1984
CITY ENGINEER
505 262-2116

ENGINEERS
ARCHITECTS
PLANNERS

An Equal Opportunity Employer

March 26, 1984

Mr. Michial M. Emery, P.E.
Bohannan-Huston, Inc.
4125 Carlisle Blvd., N.E.
Albuquerque, NM 87107

Re: City of Albuquerque
S.A.D. No. 210
Harper Rd. - Drainage
WCEA File: 82-502

10 yr. flow

Dear Mr. Emery:

Thank you for your letter dated March 15, 1984. We checked with Mr. Bordenave and he informed us about 5 acres of land east of Layton Ave. will be discharging to Harper Rd. Unless the discharge rate is controlled so the maximum rate of discharge is approximately 5 c.f.s. then it will be necessary to construct an 18-inch storm drain all the way to Layton Ave. This will increase the construction cost $78,800 for all options. Also the total area assessed will be increased from 350.445 acres to 362.893 acres.

Attached is a tabulation of Estimated Maximum Benefits for various options.

The original Estimated Maximum Benefit for one lane dry with one lane dry and area H-1 contributing was $687,600.

We will be glad to answer any questions you might have.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

xc: Jim Hicks

Attachment

-sap

Description	Diversions			
	Rosewood	Rosewood & Barstow	Rosewood & Red Sky	Rosewood, Barstow & Red Sky
WITHOUT CONTROLLED DISCHARGE FROM AREA H-1				
Total Estimated Maximum Benefits (100%)	$649,461	$626,205	$548,413	$525,157
Hoffmantown Baptist Church (15.33%)	$ 99,577	$ 96,012	$ 84,085	$ 80,519
Albuquerque Academy (21.13%)	$137,216	$132,303	$115,867	$110,954
AMDEC (2.76%)	$ 17,897	$ 17,256	$ 15,112	$ 14,471
City of Albuquerque (22.76%)	$147,790	$142,498	$124,795	$119,503
WITH CONTROLLED DISCHARGE FROM AREA H-1				
Total Estimated Maximum Benefits (100%)	$542,096	$518,840	$441,048	$417,792
Hoffmantown Baptist Church (15.33%)	$ 83,116	$ 79,550	$ 67,623	$ 64,057
Albuquerque Academy (21.13%)	$114,532	$109,619	$ 93,183	$ 88,270
AMDEC (2.76%)	$ 14,938	$ 14,297	$ 12,154	$ 11,513
City of Albuquerque (22.76%)	$123,358	$118,066	$100,364	$ 95,072

INFORMATION SHEET

PROJECT TITLE TORREY PINES @ TANOAN TYPE OF SUBMITTAL GRADING PLAN

ZONE ATLAS PAGE NO. E20-D22 CITY ADDRESS N/A

LEGAL DESCRIPTION

ENGINEERING FIRM DMJM/Adam,Hamlyn,Anderson CONTACT Jean J. Bordenave

ADDRESS 4055 Montgomery Blvd. NE PHONE 881-1808

OWNER AMDeC CONTACT Bob Gondek

ADDRESS PO Box 25000, Albuq. NM PHONE 883-3596

ARCHITECT N/A CONTACT

ADDRESS PHONE

SURVEYOR DMJM/Adam,Hamlyn,Anderson CONTACT Jean J. Bordenave

ADDRESS 4055 Montgomery Blvd. NE PHONE 881-1808

CONTRACTOR CONTACT

ADDRESS PHONE

PRE-DESIGN MEETING:

X YES
___ NO
No COPY OF CONFERENCE RECAP SHEET PROVIDED None was written

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
X GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

RECEIVED
MAR 23 1984
HYDROLOGY SECTION

DATE SUBMITTED: 3/23/84

BY: Jean J. Bordenave

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

February 21, 1984

Mr. Allen L. Whitesel
Vice President
AMDEC
P.O. Box 25000
Albuquerque, NM 87125

REF: TORREY PINES (E20-D22)

Dear Mr. Whitesel:

Based on the information provided on your February 17, 1984 submittal of the above referenced drainage plan, the Conceptual Grading and Drainage Plan checklist will need to be followed in order to at least release a rough grading permit approval.

If you have any questions regarding the above comments, please feel free to call me at 766-7644.

Sincerely,

Bernie J. Montoya

Bernie J. Montoya
Hydrologic Engineering Tech.
C.E.

BJM:mrk

INFORMATION SHEET

PROJECT TITLE Torrey Pines TYPE OF SUBMITTAL GRADING

ZONE ATLAS PAGE NO. E-20 ~~D~~-22 CITY ADDRESS Academy & Layton

LEGAL DESCRIPTION

ENGINEERING FIRM Alan Hamlyn & Anderson CONTACT Jake Berdein Ave

ADDRESS PHONE 881-1808

OWNER AMPEC CONTACT Clem Matthews

ADDRESS PHONE 883-3501

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR CONTACT

ADDRESS PHONE

CONTRACTOR Inter-Mountain CONTACT Alan Whitsel

ADDRESS PHONE 883-3501

PRE-DESIGN MEETING:

___ YES
X NO
___ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
X ROUGH GRADING PERMIT APPROVAL
X GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

Not Acceptable 100

DATE SUBMITTED: 2-17-84

BY: [signature]

RECEIVED
FEB 17 1984
HYDROLOGY SECTION

Alan

RICHARD E. LEONARD
EXECUTIVE ENGINEER

B. H. SWINBURNE, CHAIRMAN
WILLIAM V. HEREFORD, VICE-CHAIRMAN
FRANCES McCOY, SECRETARY-TREASURER
R. WARD HUNNICUTT, DIRECTOR
KLESTON LAWS, DIRECTOR

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT AVE., N.E.
P. O. BOX 25851 - ALBUQUERQUE, N. M. 87125
TELEPHONE 884-2215

January 17, 1984

Mr. Allan L. Whitesel
Vice President
AMDEC
P.O. Box 25000
Albuquerque, NM 87125

Dear Mr. Whitesel:

Reference your January 9 letter, Subject: 300' wide AMAFCA Easement in Tanoan-Golf Course to Layton.

I concur that 300 ft. wide easement may be narrowed. In order to accomplish this, I suggest the following sequence:

1. Commence construction on crossing structure for Layton Avenue.

2. Obtain AMAFCA and City approval of a grading plan which, with the crossing structure, will accommodate design flows at 3 fps in a reduced-width easement.

3. Do the grading.

4. Obtain a MAP amendment to remove land from the flood-insurance floodplain.

5. Revise the easement.

6. File the plat.

We shall try to work with you to bring this about.

Sincerely,

Richard E. Leonard

Richard E. Leonard
Executive Engineer

ic
cc: D. Sheppard
F. Aguirre

Get copy of Agreement for Fred

AM# 3466

RECEIVED
JAN 11 1984
AMAFCA

Torrey Pines

January 9, 1984

Mr. Rick Leonard
Albuquerque Metro Flood Control Authority

Subject: 300' wide AMAFCA Easement in Tanoan-Golf Course to Layton

Dear Rick:

Pursuant to our telephone conversation recently, I request AMAFCA reduce subject easement to the width and configuration shown on the attached plan and legal description.

The facility shown on the attached drawing is designed to maintain a velocity of 3 f.p.s. per the easement requirements under ultimate development; that is, the completion of the structure at Layton Street. Since SAD-205 (Layton Structure) is scheduled for construction this spring (with either a pipe or an open channel on the Bear Tributary), I would build, if required, a temporary earthen berm at the Layton/Tanoan property line to maintain the 3 f.p.s. criteria between now and this summer.

Another important consideration that we discussed is that the purpose of subject easement was to trap sod washing off of the golf course in case of heavy runoff in the early years before the golf course sod had adequate time to "root" and stabilize. As we discussed, you and I personally visited this area in 1980 after the heavy rainfall that summer and we observed that the golf course had withstood the heavy flow quite well and very little sod had actually been transported to this area. Another heavy storm in 1981 showed the same results. Since then, the sod has had three years to further "root". I believe, and from our discussions I think you at least partially concur, that the original purpose/need (sod trap) for this easement has been eliminated or greatly reduced.

I believe that this request to be reasonable, based primarily upon our observation that the need for the easement no longer exists. As an additional safety factor, the structure at Layton is scheduled to be built this spring/summer.

P.O. Box 25000 Albuquerque, New Mexico 87125 (505) 883-3450

Your early attention to this matter would be greatly appreciated.

Sincerely,

AFFILIATED MORTGAGE AND DEVELOPMENT CO.

Allan L. Whitesel

Allan L. Whitesel
Vice President

ALW/lar

P.S.
Rich:
The legal description for the new easement will be coming shortly. With it I'll also send a copy of the proposed channel grading in the new easement
ALW
1/11/84

E20-D22

DRAINAGE REPORT

FOR

TORREY PINES
AT
TANOAN

APRIL, 1984

RECEIVED
APR 09 1984
HYDROLOGY SECTION

881-1808

Chan Lg Pla
1851
(105)

DRAINAGE REPORT

FOR

TORREY PINES
AT
TANOAN

APRIL, 1984

RECEIVED
APR 09 1984
HYDROLOGY SECTION

Prepared for: Ameriwest
PO Box 25625
Albuquerque, NM 87125

Prepared by: DMJM/Adam, Hamlyn, Anderson
4055 Montgomery Blvd. NE
Albuquerque, NM 87109
(505)881-1808

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
NO 5110
NEW MEXICO
JEAN J. BORDENAVE

Jean J. Bordenave
JEAN J. BORDENAVE, N.M.P.E. & L.S. #5110

TABLE OF CONTENTS

PURPOSE AND SCOPE	A
LOCATION AND DESCRIPTION	A
DESIGN CRITERIA	B
ONSITE DRAINAGE	B
CONCLUSIONS	B
CONPUTATIONS	1-14
VICINITY MAP	PLATE A
SCS SOILS MAP	PLATE B
FLOOD HAZARD BOUNDARY MAP	PLATE C
GRADING AND DRAINAGE PLANS (pocket)	PLATES D & E
APPENDIX (Charts, Nomographs, etc.)	

DRAINAGE REPORT

TORREY PINES AT TANOAN

PURPOSE AND SCOPE:

AMDeC is proposing a townhouse complex on Tract "C" of Tanoan Properties.

The purpose of this report is to establish critera for controlling runoff, resulting from improvements, in a manner that is acceptable to the City of Albuquerque and to the Albuquerque Metropolitan Arroyo Flood Control Authority.

LOCATION AND DESCRIPTION:

The proposed improvements are located in the Northeast Heights, west of the Tanoan Road/Village Greens Road and north of Academy Road (see Plate "A" attached). It is presently zoned SU-1. All proposed street will be private. Tract "C-4" is immediately south of Wimbledon West at Tanoan Subdivision, west of Tanoan Road/Village Greens Road and east of the proposed Layton Avenue Extension. Access to this Tract is by Tanoan Road/Village Greens Drive.

The SCS Soil Survey for Bernalillo County indicates the soil composition of EtC (embudo Tijeras Complex, 0 to 9 percent slopes); TgB (Tijeras gravelly, fine, sandy loam, 1 to 5 percent slopes); and EmB (embudo gravelly, fine sandy loam 0 to 5 percent slopes) (see Plate "B" attached).

Portions of this project (along the existing Pino Arroyo) are located within the Flood Area Zone A (see Plate "C" attached). The existing site slopes northwesterly from Academy Road and westerly and southwesterly from an east-west ridge located south of the Wimbledon West Subdivision. The northwesterly and southwesterly slopes drain to the Pino Arroyo which traverses the site. The westerly slope drains to the intersection of Harper and Ventura Streets. That portion of the site in the Pino Arroyo is in Flood Zone A (see Plate "C" attached).

DESIGN CRITERIA:

In accordance with AMAFCA and the City of Albuquerque requirements, the hydrological analysis is based on the 100 year frequency rainfall. The rational method, Q=CIA was used to quantify runoff. There are no offsite flows entering the property being diverted by previous development. This firm has previously submitted a drainage report defining the flows in the Pino Arroyo. This report established a high water elevation in the arroyo of approximately 5555.00. City to

ONSITE DRAINAGE:

Flows were diverted to the maximum extent possible to the Pino Arroyo. Approximately 11 cfs will exit the property near the Harper Road/Ventura intersection in the 100 year storm and approximately 7 cfs in the 10 year storm.

Flows to the Pino Arroyo are transported via the streets and grassed swales, and enter the arroyo either by underground conduit or by concrete rundown flows, velocities, and depths are shown on Plates D-1 and D-2.

CONCLUSIONS:

1. Flow potential to the Harper/Ventura intersection has been reduced.
2. Flow depths and velocities in the streets are within limits established by the DPM and the developer.
3. Application will be made for removal of the lotted area from the flood plain after grading is completed.
4. The arroyo will be landscaped with AMAFCA's approval after grading is completed.
5. A drainage easement and swale will be required on the rear of the lots in Areas 1 & 2.

DMJM / AHA ALBUQUERQUE	PROJECT: TORREY PINES @ TANDAN DRAINAGE CALCS.	PROJECT NO. 04603-03-01	BY: D. A.	DATE: 4-4-84	PAGE 1 of 1
SUBJECT					

INTERNAL DRAINAGE - PEAK FLOWS

Area No.	AREA (Acres)	"C" Composite	Q cfs	Depth ft.	V fps	Area no. contributing at Reach Pt.	Reach Pt. No.	Q Total at Reach Pt.
1	1.39	0.732	5.2	0.31	1.6	1	R-1	5.2
2	1.35	0.675	4.6	--	--	1 & 2	R-2	9.5
				0.41	1.8	1 & 2	R-3 Single Type "D" CB	9.5
3	0.48	0.773	1.9	Sump	-	3 & 4	R-4 Double Type "D" CB	3.3
4	0.39	0.614	1.2	0.12	1.3	4	R-5 Single Type "D" CB	1.2
5	0.24	0.563	0.7	0.10	0.9	5	—	—
7	0.92	0.629	2.9	0.28	2.2	7	—	—
6	2.01	0.684	7.0	Sump	-	5, 6 & 7	R-6 At concrete rundown	10.6
						5, 6 & 7	R-7 At sidewalk Culvert at Ventura Ave.	10.6
13	1.11	0.631	3.5	0.30	1.5	13	R-10	3.5
14	0.58	0.578	1.7	0.18	1.2	14	—	—
15	1.59	0.675	5.4	0.41	1.8	13, 14 & 15	R-11	10.2
24	1.21	0.693	4.2	0.44	2.1	13, 14, 15 & 24	R-12	13.5
16	0.35	0.623	1.1	0.19	1.5	16	R-13	1.1
21	0.51	0.630	1.6	0.22	1.0	21	R-14	1.6
22	0.58	0.654	1.6	0.12	2.0	22	R-15	1.6
23	0.40	0.600	3.0	0.18	2.2	22 & 23	R-16	3.0
20	1.10	0.753	4.2	0.30	3.9	16, 21, 22 & 23	R-17	9.9
19	0.46	0.800	1.9	Sump	—	16, 21, 22, 23, 20, 13, 14, 15, 24 & 19	R-21 Double Type "C" CB	24.8
11	0.53	0.735	2.0	0.23	1.7	11	R-18	—
12	0.74	0.754	2.8	0.27	2.5	11 & 12	R-19	4.8
10	0.23	0.580	0.7	0.13	0.8	10	—	0.7
17 & 18	0.89	0.608	2.7	0.22	1.7	17 & 18	R-19	2.7
9	1.19	0.796	7.8	-	3.9	10, 11, 12, 17, 18, 9	R-20 At concrete rundown	16.0
8	0.53	0.658	2.8	—	—	8	Outlet to Proposed Channel	2.8

DMJM / AHA ALBUQUERQUE	PROJECT: TORREY PINES @ TAMARAN DRAINAGE CALCS.	PROJECT NO. 04603-03-01	BY: D.A.	DATE: 4-2-84	PAGE 1 of 14
SUBJECT					

FINDING COMPOSITE "C" FACTOR:

Area-1 = 60,750 SF = 1.39 Ac

Description	Area	Factor	A x F
Street	15750 SF	0.95	14725
Bldgs	23138 SF	0.95	21981
Landscaping	22112 SF	0.35	7739
	60,750 SF		44445 SF

$C = \frac{44445}{60,750} = 0.7316$

$t_{c_1} = .0078 \times \frac{140^{.77}}{.0067^{.385}} = 2.41$ min.

$t_2 = .0078 \times \frac{380^{.77}}{.005^{.385}} = 5.81$ min

8.22 min. < 10 mins.

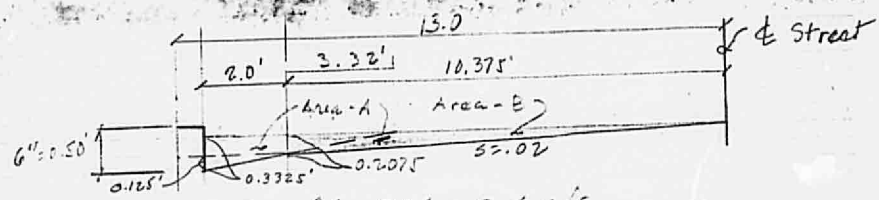
use 10 mins., min. tc

I = 5.07

$Q_{10} = CIA = 0.7316 \times 5.07 \times 1.39 = 5.2$ cfs.

Checking for half street capacity per street section without overflow to other half of street

See "Nomograph for flow in triangular channel" Plate-1



street slope = .005 ; $Q/2 = 5.2/2 = 2.6$ cfs

for Area A : n = .015 ; cross slope = .3325'/3.32 = .063575 ; $z = \frac{1}{\text{cross slope}} = 15.73$

$\frac{z}{n} = \frac{15.73}{.015} = 1048$

Determining depth in Area A ; Q = 2.6 cfs ; $\frac{z}{n} = 1048$; S = .005

then d = 0.31'

for Area B, determine Q_{A-B}: $d' = d - \frac{x}{z} = .31 - \frac{2}{15.75} = .183$

Q_{A-B} (given area) = 2.6 − 0.6 = 2.0

for Area B ; $d' = .31 - \frac{10.375}{50} = .1025$; ; $\frac{z}{n} = \frac{50}{.017} = 2941$ $Q_B = 0.30$ cfs

DMJM / AHA ALBUQUERQUE	PROJECT: TORREY PINES @ TANDLIN DRAINAGE STUDY	PROJECT NO. 04603-03-01	BY: DA	DATE: 5/7/94	PAGE 2 of 14
SUBJECT					

max. Q_{area} (composite section) half street = 2 + 0.3 = 2.3 cfs < 3.6 cfs ok

for s = .005, V = 1.6 fps (see Plate 22.3 D-1 attached)

Area-2 = 59,000 SF = 1.35 Ac

Description	Area	Factor	A x F
Street	8320 SF	0.95	7904
Bldg.	23647 SF	0.95	22465
Landscaping	27033 SF	0.35	9462
	59,000 SF		39831

$$"C" = \frac{39831}{59000} = 0.6751$$

Using I = 5.07 ; $Q_{A-2} = 0.6751 \times 5.07 \times 1.35 = 4.6$ cfs.

travel time from R-1 to R-2 $= \frac{L}{V \times 60}$; L = 320' to R-2; V = 1.8 fps

$$= \frac{320}{1.8 \times 60} = 2.96 \text{ mins.}$$

total time to R-2 from Area 1 = 8.22 + 2.96 = 11.18 mins

I = 4.79 for t = 11.18 mins

$$Q_{10} = Q_{A-1} + \frac{I_{10}}{I_{A-1}} \times Q_{A-2}$$

$$Q_{10} = 5.2 + \left[\frac{4.79}{5.07} \times 4.6\right] = 5.2 + 4.3 = 9.5 \text{ cfs}$$

V = 1.80 fps ; d = 0.41'

Area-3 = 21,000 SF = 0.482 Ac

Description	Area	Factor	F x A
Street	9100 SF	0.95	8645
Bldg	5700 SF	0.95	5415
Landscaping	6200 SF	0.35	2170
	21,000 SF		16230

$$"C" = \frac{16230}{21000} = 0.773$$

DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TANDLIN DRAINAGE CALCS	PROJECT NO. 04603-03-01	PAGE 3 of 14
		BY: DA / DATE: 4/1/94	
SUBJECT			

Using $I = 5.07$

$Q_{A-3} = CIA = 0.773 \times 5.07 \times .472 = 1.9$ cfs

At R-3; $V = 1.8$ fps using $s = .005$ (see Plate 22.2 B-2)

travel time from R-2 to R-3 $= \frac{L}{V \times 60} = \frac{50}{1.8 \times 60} = 0.46$ mins

total time from R-2 to R-3 $= 11.18 + .46 = 11.64$ mins, $I_{11.64} = 4.69$

Determine Q_{BP} [illegible] R-4 CB

Using Plate 22.3 D-1 to determine depth of flow

$Q/2$ (from R-2) $= 9.5/2 = 4.8$ cfs; $s = .005$; $d = 0.40'$

Grate Capacity (see Plate 22.3 D-5) $= 3.0$ cfs.

$Q_{Bypass} = 9.5 - 3 = 6.5$ cfs.

Q_{IN} (to Double Type "C" CB) $= 6.5 + \left[\frac{I_{A-3}}{I_{A-1}} \times Q_{A-3}\right] = 6.5 + \frac{4.69}{5.07} \times 1.9$

$= 8.3$ cfs. at R-4

Finding depth of flow (from Plate 22.3 D-2). The CB is located at the [illegible] Woodbrook St. The section of the street will be tipped westerly and the double CB will be in a sump condition. Therefore, from Plate 22.3 D-2, depth of flow $= 0.60'$ using $s = .001$. Total depth allowable $= 0.5 + .25 = 0.75'$ [illegible]

Checking for pipe capacity on the 18"Ø pipes connecting Single Type "A" CB and double Type "C" CB.

$s = .016$ $d = 18$" Ø RCP $n = .013$ $R = \frac{A}{P} = \frac{\frac{\pi 1.5^2}{4}}{\pi \times 1.5} = \frac{1.5}{4} = .375'$

Capacity $Q = AV = \frac{\pi 1.5^2}{4} \times \frac{1.486}{0.013} \times (.375)^{2/3} \times .016^{1/2}$

$= 1.767 \times 114.307 \times .5 \times .12649$

$= 13.3$ cfs > 3.0 cfs. ok

DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TANOAN DRAINAGE CALCS	PROJECT NO. 04603-03-01	PAGE 4 of 12
		BY: DA / DATE: 4/2/04	
SUBJECT			

Checking pipe capacity of 24"Ø RCP from double type "C" CB to exist. storm drain MH @ Tanoan Drive.

$d = 24"Ø$; $S = .02$; $A = \frac{\pi \times 2^2}{4} = 3.1416$ SF $R = D/4 = \frac{2}{4} = .5$; $R^{2/3} = .63$

total Q_{100} entering pipe = 3.0 cfs + 8.3 cfs = 11.3 cfs

Capacity $Q = AV = \frac{\pi \times 2^2}{4} \times \frac{1.486}{.013} \times .63 \times .1414 = 32.0$ cfs > 11.3 cfs req'd.

ok

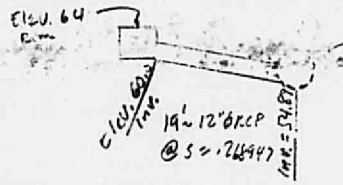
Area-4 = 17,000 SF = 0.39 Ac.

Description	Area	Factor	A x F
Bldg	7474 SF	0.95	7100
Landscaping	9526 SF	0.35	3334
	17000 SF		10434 SF

$"C" = \frac{10,434}{17,000} = 0.613756$; $I = 5.07$

$Q_{100} = CIA = 0.613756 \times 5.07 \times 0.39 = 1.2$ cfs at P-5

The runoff will be intercepted by a single type "D" Catch Basin and will be piped out into the exist 21"Ø storm drain on Tanoan Drive.



Check Capacity of 12"Ø RCP

$Q = AV = \frac{\pi \times 1^2}{4} \times \frac{1.486}{.013} \times .3968 \times .51860 = 18.4$ cfs > 1.2 cfs

ok

Use 12"Ø RCP @ S = 0.268

Area-7 = 40,000 SF = 0.91827 Ac.

Description	Area	Factor	A x F
Bldg	13630 SF	0.95	12949
Landscaping	21370 SF	0.35	7480
	40,000 SF		25179 SF

$"C" = \frac{25179}{40,000} = 0.629475$ $I = 5.07$

$Q_{100} = CIA = 0.629475 \times 5.07 \times .91827 = 2.9$ cfs

DMJM / AHA ALBUQUERQUE	PROJECT: TORREY PINES @ TAINAN DRAINAGE CALCS	PROJECT NO. 04133-00-01	BY: D.A.	DATE: 4/15/94	PAGE 5 of 7
SUBJECT					

Area-5 = 10,500 SF = 0.241 Ac

Description	Area	Factor	A x F
Bldg.	3720	0.95	3534 SF
Landscaping	6780	0.35	2373 SF
	10500 SF		5907

"C" Factor = $\frac{5907}{10500}$ = 0.56257 ; I = 5.07

Q_{100} = CIA = 0.56257 x 5.07 x 0.241 = 0.70 cfs

Area-6 = 87500 SF = 2.0087 Ac

Description	Area	Factor	A x F
Bldg.	22600 SF	0.95	21470 SF
Street	26100 SF	0.95	24795 SF
Landscaping	38800 SF		13500 SF
	87500 SF		59745 SF

"C" = $\frac{59845}{87500}$ = 0.6839 ; I = 5.07 - 10 minutes, min. t_c

Q_{100} = CIA = 0.6839 x 5.07 x 2.0087 = 7.0 cfs. at R-6

At R-6, total Q_{100} [illegible] via a concrete rundown = $Q_{A-7} + Q_{A-5} + Q_{A-6}$

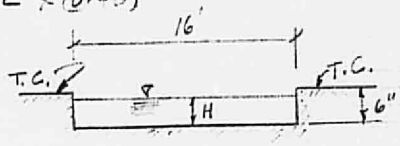
= 2.9 + 0.7 + 7.0 = 10.60 cfs. at R-6

The street along R-5 will be tipped westerly so that the westerly curb will act as a weir, then:

$Q = 10.60 = 2.6 \times L \times H^{3/2}$; using H = 0.40'

$10.60 = 2.6 \times L \times (0.40)^{3/2}$

L = 16'



DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TANOAN DRAINAGE BASIN	PROJECT NO. 04-03-03-01		PAGE 6 of 14
		BY: DA	DATE: 4/5/04	
SUBJECT				

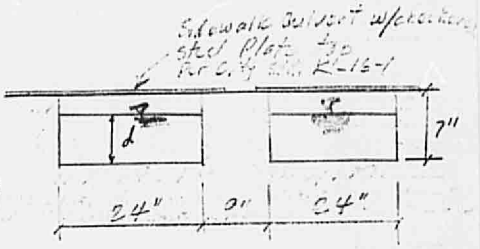
At R-7, a sidewalk culvert with steel plate top will be built to disperse runoff to Lawton Ave. The sidewalk culvert will be designed as a channel because of the elevation difference, creating a velocity at the entrance of the culvert.

$Q_{10} = 10.6$ cfs

$S = .0535$ (from R-5 to R-6)

$n = .015$ $\quad S^{1/2} = .2313$

Using multiple sidewalk culvert @ 24" wide each



$Q = AV$; $\quad$ Area $= 2 \times 2 \times d = 4d$

$WP = 4 + 2d$

$$Q = 10.6 = 4d \times \frac{1.486}{.015} \times \left(\frac{4d}{4+2d}\right)^{2/3} \times .2313$$

$$0.115649 = d\left(\frac{4d}{4+2d}\right)^{2/3}$$

$d = 0.29'$ $\quad V = 9.2$ fps

DMJM / AHA ALBUQUERQUE	PROJECT: TORREY PINES @ TANDRIN DRAINAGE CALCS	PROJECT NO. 04603-03-01	PAGE 7 of 12
		BY: JA / DATE: 4/15/04	
SUBJECT			

Area - 13 = 48,250 SF = 1.107668 Ac.

Description	Area	Factor	A x F
Bldg	15,600 SF	0.95	14820
Street	7000 SF	0.95	6650
Landscaping	25650 SF	0.35	8978
	48250 SF		30,448 SF

"C" factor = $\frac{30448}{48250}$ = 0.631047

$t_{c_1} = .0078 \times \frac{295^{.77}}{.01186^{.385}} = 3.31$ min.

$t_{c_2} = .0078 \times \frac{40^{.77}}{.015^{.385}} = 0.67$

4.18 mins, use min. 10 minutes

I = 5.07

Q_{10} Area-13 = 0.631047 x 5.07 x 1.107668 = 3.50 cfs.

At R-10: Q = 3.50 cfs.; d = 0.30'; v = 1.5 fps.

Area - 14 = 25,500 SF = 0.585399 Ac

Description	Area	Factor	A x F
Bldg.	9700 SF	0.95	9215 SF
Landscaping	15800 SF	0.35	5530 SF
	25500 SF		14745 SF

"C" factor = $\frac{14745}{25500}$ = 0.578235 ; I = 5.07

Q_{10} A-14 = [illegible]

v = 1.2 fps
d = 0.18'

Area - 15 = 69,250 SF = 1.58976 Ac.

Description	Area	Factor	A x F
Bldg.	20,500 SF	0.95	19475 SF
Street	17,000 SF	0.95	16,150 SF
Landscaping	31,750 SF	0.35	11113 SF
	69250 SF		46738 SF

"C" factor = $\frac{46738}{69250}$ = 0.674917 ; I = 5.07

Q_{10} = 0.674917 x 5.07 x [illegible] = 5.40 cfs.

DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TAWORN DRAINAGE STUDY	PROJECT NO. 0460.[illegible]-01	PAGE 2 of 14
		BY: DG / DATE: 9/[illegible]/84	
SUBJECT			

Travel time from R-10 to R-11 of A-13

$\Delta t = .0078 \times \frac{500^{.77}}{.005^{.38}} = 7.18$ mins.

Travel time $= 4.18 + 7.18 = 11.36$; $\frac{I}{11.36} = 4.75$

Travel time from farthest pt. on A-14 to R-11

$\Delta t_1 = .0078 \times \frac{250^{.77}}{.005^{.38}} = 4.15$ mins.

$\Delta t_2 = .0078 \times \frac{410^{.77}}{.005^{.38}} = 6.16$ mins

Travel time $= 10.31$ mins ; $\frac{I}{10.31} = 4.99$

At R-11, $Q_{10} = Q_{A-13} + Q_{A-15} + Q_{A-14} = Q_{A-13} + \left(\frac{I_{A-15}}{I_{A-13}}\right) Q_{A-15} + \left(\frac{I_{A-14}}{I_{A-13}}\right) Q_{A-14}$

$= 3.50 + \left(\frac{4.75}{5.07} \times 5.40\right) + \left(\frac{4.99}{5.07} \times 1.70\right)$

$= 10.2$ cfs ; $d = 0.41$; $V = 1.8$ fps.

Finding Depth of flow at R-11 :

$Q/2 = 10.2/2 = 5.1$ cfs ; street slope $= .005$

See page [illegible]

$d = 0.41$ for Area - A

for Area B, determine Q_{A-B} ; $d' = d - \frac{x}{z} = .41 - \frac{2}{15.75} = 0.283$

Q_{A-B} (1 side area) $= 5.1 - 1.5 = 3.6$ cfs.

for Area B : $d' = .41 - \frac{10.375}{50} = .203$; $z = 50$ $\frac{z}{n} = 2941$

$Q_B = 2.5$ cfs

total Q (composite section - half street) $= 3.6 + 1.5 = 5.1$ cfs $= 5.1$ cfs total Q

Per Plate 22.3 D-1, using $Q = 5.1$ cfs, $s = .005$

$d = 0.42$ - runoff will be confined in street.

DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TAINORI DRAINAGE CALCS.	PROJECT NO. 04603-03-01		PAGE 9 of 14
		BY: D.F	DATE: 4/5/94	
SUBJECT				

Area-24 = 52,750 SF = 1.21 Ac

Description	Area	Factor	A x F
street	17250	0.95	16388
Bldg.	12880	0.95	12236
Landscaping	22620	0.35	7917
	52,750 SF		36541 SF

"C" Factor = $\frac{36541}{52,750}$ = 0.69272 I = 5.07

Q_{100} A-24 = 0.69272 x 5.07 x 1.21 = 4.2 cfs

Travel time from R-11 to R-12;

$\Delta t = .0078 \times \frac{550^{.77}}{.0236^{.385}} = 4.25$ mins.

time = 11.36 + 4.25 = 15.61 min; $I_{15.61}$ = 4.04

At R-12, total $Q = Q_{R-11} + \left(\frac{I_{A-24}}{I_{A-13}} \times Q_{A-24}\right) = 10.2 + \left(\frac{4.04}{5.07} \times 4.2\right)$

= 13.5 cfs. ; d = 0.44; V = 2.1 fps

Area-16 = 15250 SF = 0.35 Ac.

Description	Area	Factor	A x F
Bldg	6300	0.95	5985
Street	600	0.95	570
Landscaping	8315	0.35	2910
	15250 SF		9498 SF

"C" Composite = $\frac{9498}{15250}$ = 0.62282 ; I = 5.07

Q_{100} A-16 = 0.62282 x 5.07 x 0.35 = 1.10 cfs at R-13

V = 1.5 fps

d = 0.19

Area-21 = 22,250 SF = 0.51079 Ac

Description	Area	Factor	A x F
Bldg.	10375	0.95	9856
Landscaping	11875	0.35	4156
	22,250 SF		14012 SF

DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TANOAN DRAINAGE CALCS.	PROJECT NO. 04603-03-01	PAGE 10 of 14
		BY: DA / DATE: 4/5/04	
SUBJECT			

"C" composite = $\frac{14012}{23250}$ = 0.62975; I = 5.07

Q_{100} = 0.62975 × 5.07 × 0.51079 = 1.6 cfs At R-14

V = 1.0 fps

d = 0.22'

Area-22 = 25,500 SF = 0.585399 Ac

Description	Area	Factor	A×F
Bldg.	10,785 SF	0.95	10246
Landscaping	14,715 SF	0.35	5150
	25500 SF		15396 SF

"C" Composite = $\frac{15396}{25,500}$ = 0.603765 using t_c = 10 mins. I = 5.07

Q_{100} A-22 = 0.603765 × 5.07 × 0.585399 = 1.80 cfs at R-15

V = 2.0 fps

d = 0.12'

At R-16, a more realistic runoff value can be derived by combining areas 22 & 23, since the length between reaches are short.

Area-23 = 17250 SF = 0.396 Ac

Description	Area
Bldg	7010

Combining Areas-22 & 23; = 25500 + 17250 = 42750 SF

Description	Area	Factor	A×F
Bldg.	17795	0.95	16905
Landscaping	24955	0.35	8734
	42750 SF		25639 SF

"C" Composite = $\frac{25639}{42750}$ = 0.5997 ; I = 5.07

Q_{100} = 0.5997 × 5.07 × 42750/43560 = 3.0 cfs

V = 2.2 fps @ S = .0222

d = 0.18'

DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TANDAN DRAINAGE BASIN	PROJECT NO. 04603-03-01	PAGE 11 of 12
		BY: DA / DATE: 4/5/04	
SUBJECT			

Area-20 = 48,000 SF = 1.10 Ac

Description	Area	Factor	AxF
Street	15500	0.95	14725
Bldg.	16735	0.95	15898
Landscaping	15765	0.35	5518
	48,000 SF		36141 SF

"C" Composite = $\frac{36141}{48000}$ = 0.752938 ; I = 5.07

Q_{100} = 0.752938 x 5.07 x 1.10 = 4.2 cfs.

Total Q_{100} at R-17 = $Q_{A-16} + Q_{A-21} + Q_{A-22+23} + Q_{A-20}$

Q_{100} = 1.10 + 1.60 + 3.0 + 4.2 = 9.90 cfs

d = 0.30' and v = 3.9 fps.

Area-19 = 20,000 SF = 0.459137 Ac

Description	Area	Factor	AxF
Street	7000	0.95	6650
Bldg	8000	0.95	7600
Landscaping	5000	0.35	1750
	20,000 SF		16000

"C" Composite = $\frac{16000}{20000}$ = 0.80 ; I = 5.07

Q_{100} = 0.80 x 5.07 x 0.459137 = 1.9 cfs.

Travel time from R-12 to R-21

$\Delta t = .0078 \times \frac{170^{.77}}{.605^{.385}}$ = 3.13 mins

time to R-21 from R-12 = 15.61 + 3.13 = 18.74 mins

I = 3.68

Total Q_{100} at R-21 $= Q_{R-17} + Q_{R-12} + \left[\frac{I_{A-14}}{I_{A-13}} \times Q_{A-13}\right]$

$= 9.9 + 13.5 + \left[\frac{3.68}{5.07} \times 1.9\right]$

Q_{100} (R-21) $= 24.8$ cfs.

At R-21, 2 double Type "C" CB will be constructed to accomodate this Q_5. The runoff will piped to the proposed channel. Try a 24"ϕ RCP with S=.015: n=.013; Q_{100} = 24.8 cfs

Area $= \frac{\pi \times 2^2}{4} = 3.14$ SF; $R = \frac{D}{4} = 0.5$; $R^{2/3} = 0.63$; $S^{1/2} = .1225$

Capacity $Q = AV = 3.14 \times \frac{1.486}{.013} \times .63 \times .1225 = 27.7$ cfs > 24.8 cfs ok.

Use 24"ϕ RCP @ S=.015; V= 8.8 fps.

Area -11 = 23,000 SF = 0.528 Ac

Description	Area	Factor	A x F
Street	4000	0.95	3800
Bldg	10150	0.95	10243
Landscaping	8850	0.35	2887
	23,000 SF		16900 SF

"C" Composite $= \frac{16,900}{23,000} = 0.73478$; I = 5.07

$Q_{100} = 0.73478 \times 5.07 \times 0.528 = 2.0$ cfs

V = 1.7 fps d = 0.28'

DMJM / AHA ALBUQUERQUE	PROJECT TORREY PINES @ TANDEM DRAINAGE STUDY	PROJECT NO. 24403-03-01	PAGE 13 of 16
		BY: SP / DATE: 4/7/10	
SUBJECT			

Area-12 = 32,250 SF = 0.740358 Ac.

Description	Area	Factor	A x F
Street	8350	0.95	7933
Bldg.	13350	0.95	12683
Landscaping	10550	0.35	3693
	32,250 SF		24309 SF

"C" Composite $= \frac{24309}{32250} = 0.753767$; $I = 5.07$

Q_{100} A-12 $= 0.753767 \times 5.07 \times 0.740358 = 2.8$ cfs

Total Q_{100} at R-18 $= Q_{A-11} + Q_{A-12} = 2.0 + 2.8 = 4.8$ cfs

$d = 0.27'$; $V = 2.5$ fps

Area-10 = 20,000 SF = 0.229568 Ac

Description	Area	Factor	A x F
Bldg.	7680	0.95	7296 SF
Landscaping	12320	0.35	4312 SF
	20,000 SF		11608 SF

"C" Composite $= \frac{11608}{20,000} = 0.5804$; $I = 5.07$

Q_{100} A-10 $= 0.5804 \times 5.07 \times .229568 = 0.70$ cfs

$d = 0.15'$, $V = 0.80$ fps

Area-9 = 52,000 SF = 1.193756 Ac

Description	Area	Factor	A x F
Bldg.	13600	0.95	12920
Street	30,000	0.95	28500
Landscaping	8400	0.35	2940
	52000 SF		41420 SF

"C" Composite $= \frac{41420}{52000} = 0.7965$; $I = 5.07$

$Q_{100} = 0.7965 \times 5.07 \times 1.193756 = 7.8$ cfs

DMJM / AHA ALBUQUERQUE	PROJECT: TORREY PINES @ TANOAN DRAINAGE CALCS.	PROJECT NO. 04603-03-01	BY: DA	DATE: 4/5/84	PAGE 14 of 14
SUBJECT					

Areas 17 & 18 = 38,750 SF = 0.88957 Ac.

Description	Area	Factor	A x F
Bldg	16200	0.95	15390
Street	500	0.95	475
Landscaping	22050	0.35	7718
	38,750 SF		23583 SF

"C" Composite = $\frac{23583}{38,750}$ = 0.608594

Initial t_c = 2.78 mins. use 10 mins. minimum t_c; I = 5.07

Q_{100} = 0.608594 x 5.07 x .88957 = 2.7 cfs at 12-19

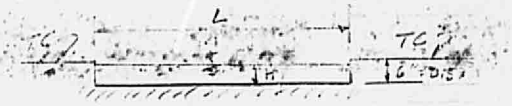
Total Q_{100} at (12-20) = $Q_{R-18} + Q_{A-10} + Q_{R-19} + Q_{A-9}$

= 4.8 + 0.70 + 2.7 + 7.8

= 16.0 cfs ; V = 3.9 fps per Plate 22.2 B-2

At 12-20, runoff will outlet to the proposed channel by constructing a concrete rundown. The curbs will act as a weir.

Using L = 20', then



$Q = 2.6 \times L \times H^{3/2}$

$16.0 = 2.6 \times 20 \times H^{3/2}$

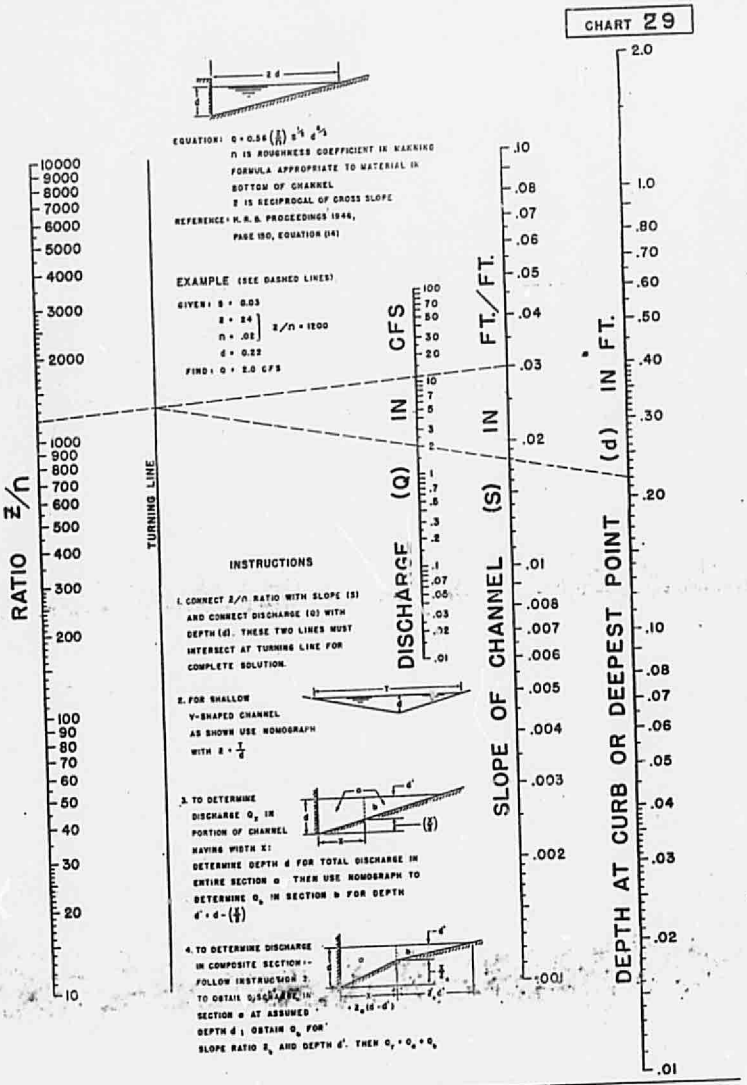
H = 0.45' < 0.50' ok

Area-8 = 36,250 SF = 0.832 Ac

Description	Area	Factor	A x F
Bldg.	18620	0.95	17689
Landscaping	17630	0.35	6171
	36,250 SF		23860 SF

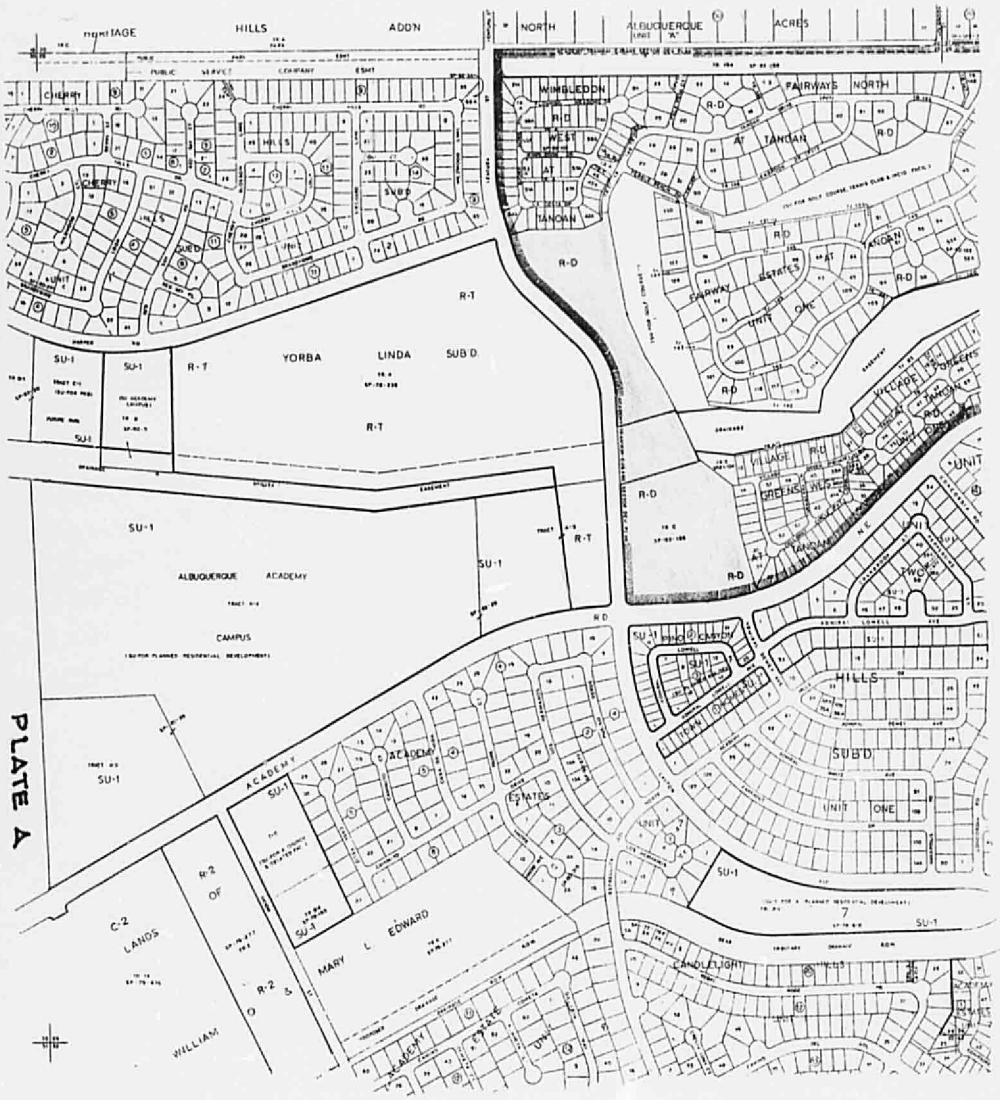
"C" Composite = $\frac{23860}{36250}$ = 0.658 ; I = 5.07

Q_{100} = 0.658 x 5.07 x 0.832 = 2.8 cfs outlating to the proposed channel



NOMOGRAPH FOR FLOW
IN TRIANGULAR CHANNELS

PLATE-1


HILLS
ADD'N
NORTH
ALBUQUERQUE
ACRES
WIMBLEDON
WEST
AT
TANOAN
FAIRWAYS NORTH
AT TANOAN
FAIRWAY
ESTATES
UNIT ONE
VILLAGE
GREENSHOLDS
UNIT
TWO
YORBA
LINDA
SUB'D.
R-T
R-D
SU-1
ALBUQUERQUE ACADEMY
CAMPUS
HILLS
SUB'D
UNIT ONE
ACADEMY
ESTATES
UNIT
MARY L. EDWARD
CANDLELIGHT
C-2
LANDS
R-2
OF
WILLIAM
PLATE A

E-20-Z

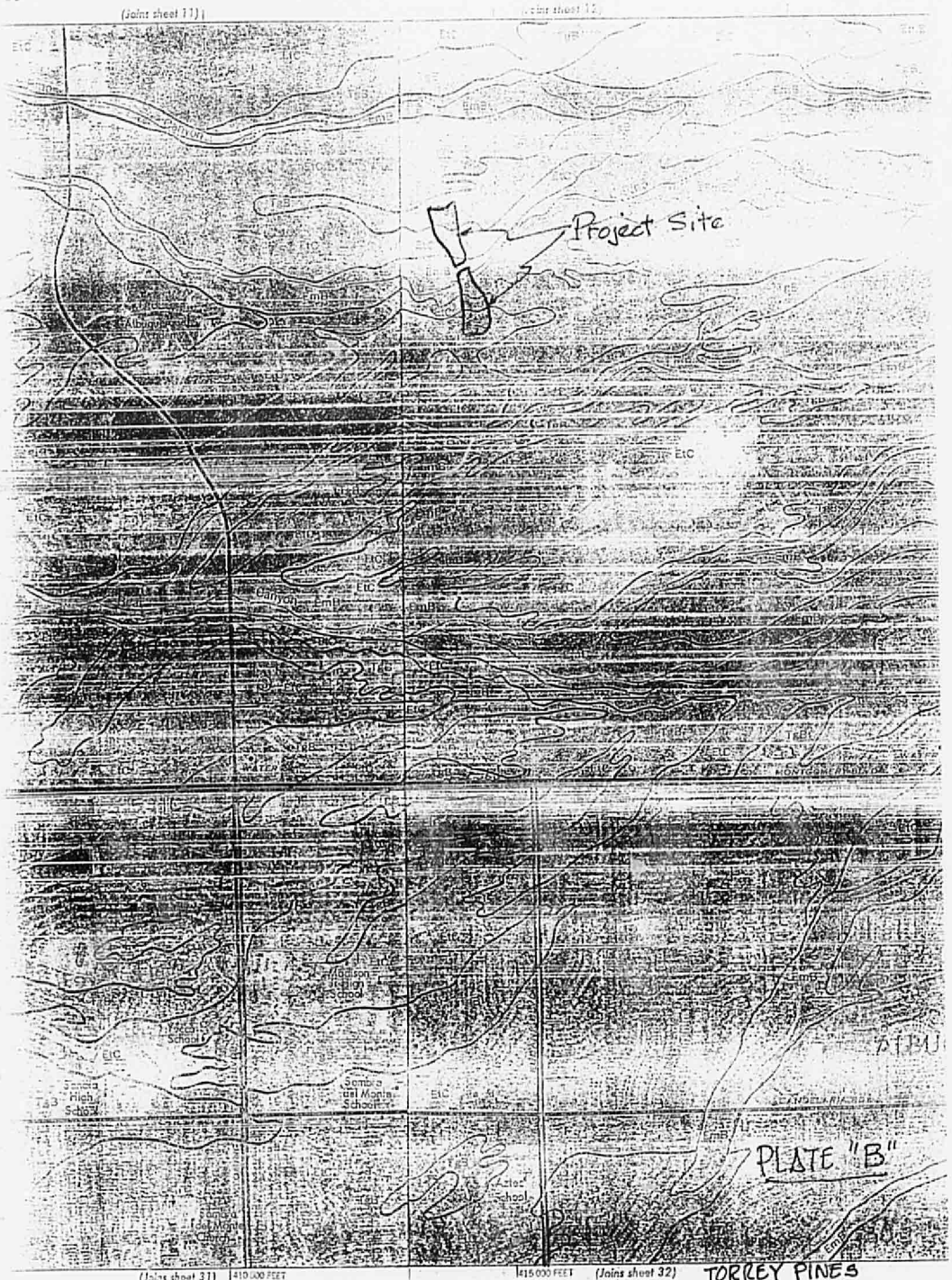


PLATE "B"

TORREY PINES AT TANOAN

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF

ALBUQUERQUE, NEW MEXICO

BERNALILLO COUNTY

PANEL 17 OF 50

COMMUNITY-PANEL NUMBER

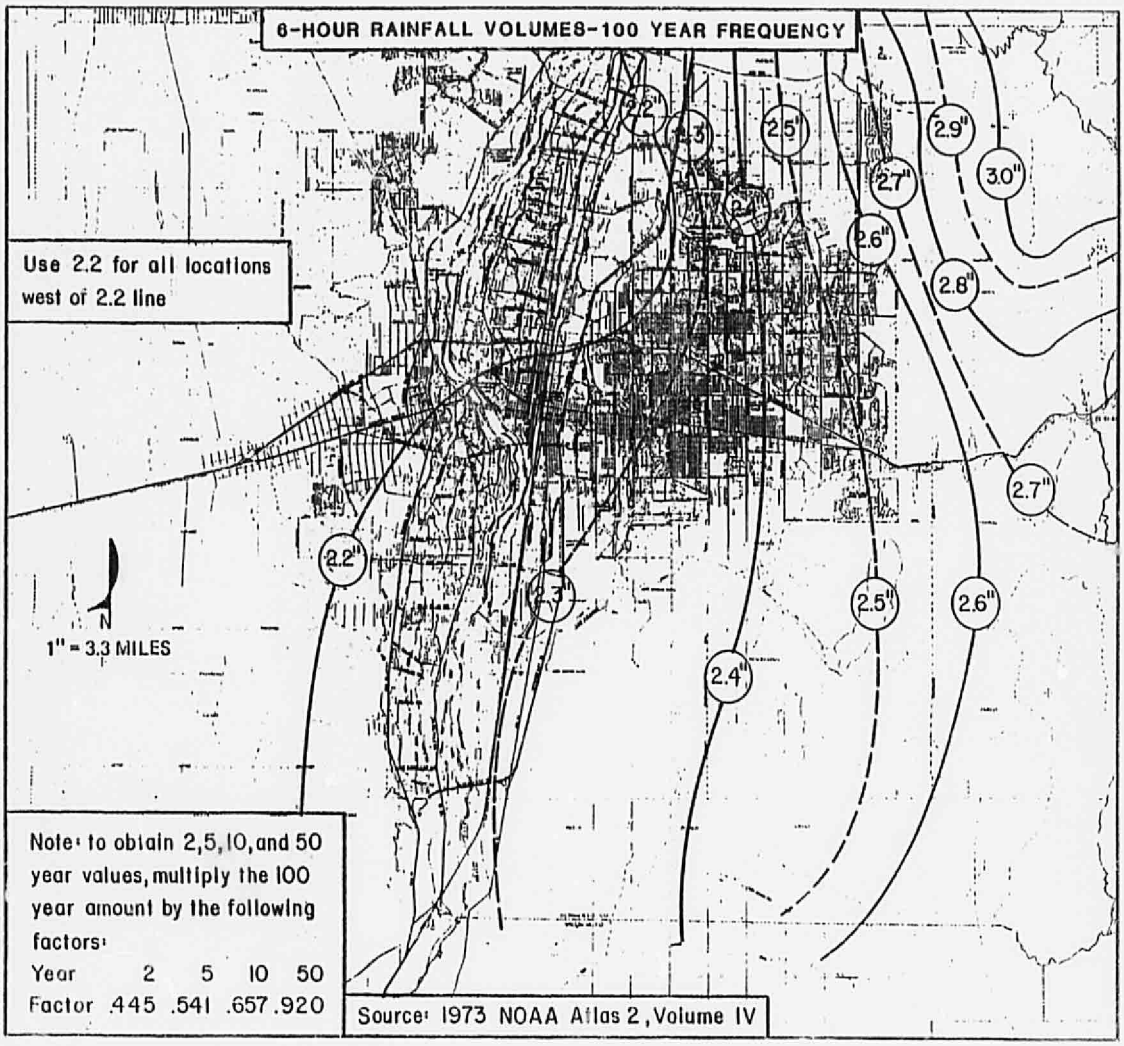
350002 0017

EFFECTIVE DATE:

OCTOBER 14, 1983

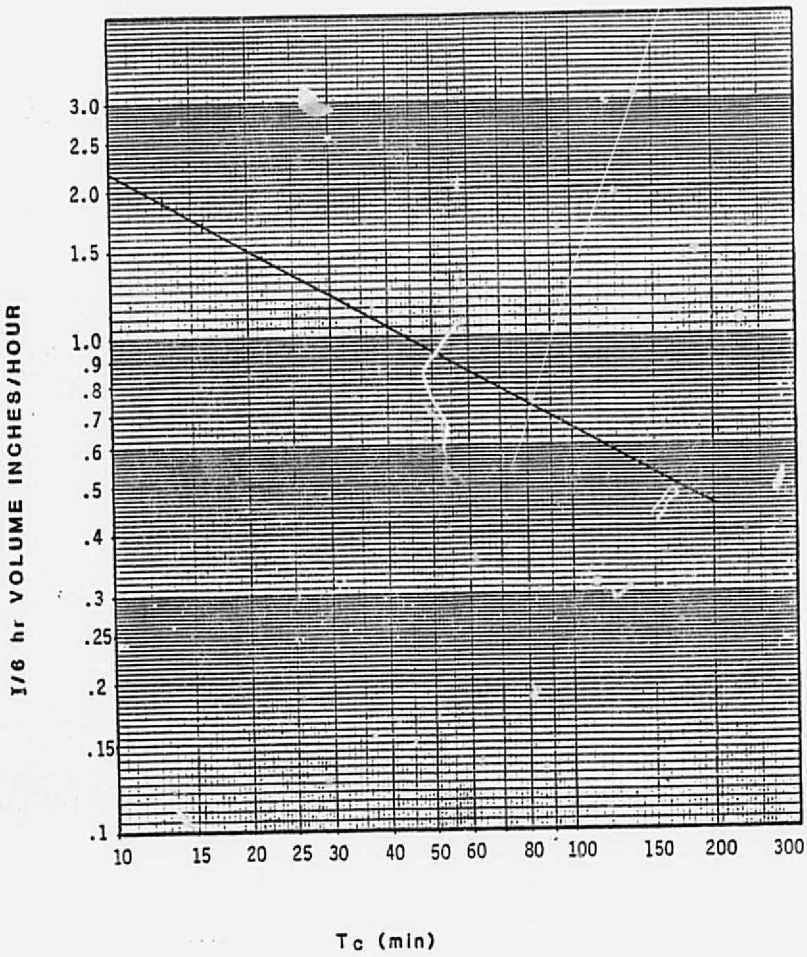
PLATE C

Federal Emergency Management Agency


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.

TABLE 22.3 B-1

VALUES OF MANNING'S n

	n
Reinforced Concrete Pipe	.013
Poured Concrete	.013
No-joint cast in place concrete pipe	.014
Reinforced Concrete Box	.015
Reinforced Concrete Arch	.015
Streets	.017
Flush Grouted Rip-Rap	.020
Corrugated Metal Pipe	.025
Grass Lined Channels (sodded & irrigated)	.025
Earth Lined Channels (smooth)	.030
Arroyo Channels	.030
Wire Tied Rip-Rap	.040
Medium Weight Dumped Riprap	.045
Grouted Rip-Rap (exposed rock)	.045
Arroyo Overbank	.045
Jetty Type Rip-Rap ($D_{50} > 24"$)	.050

STREET CAPACITY

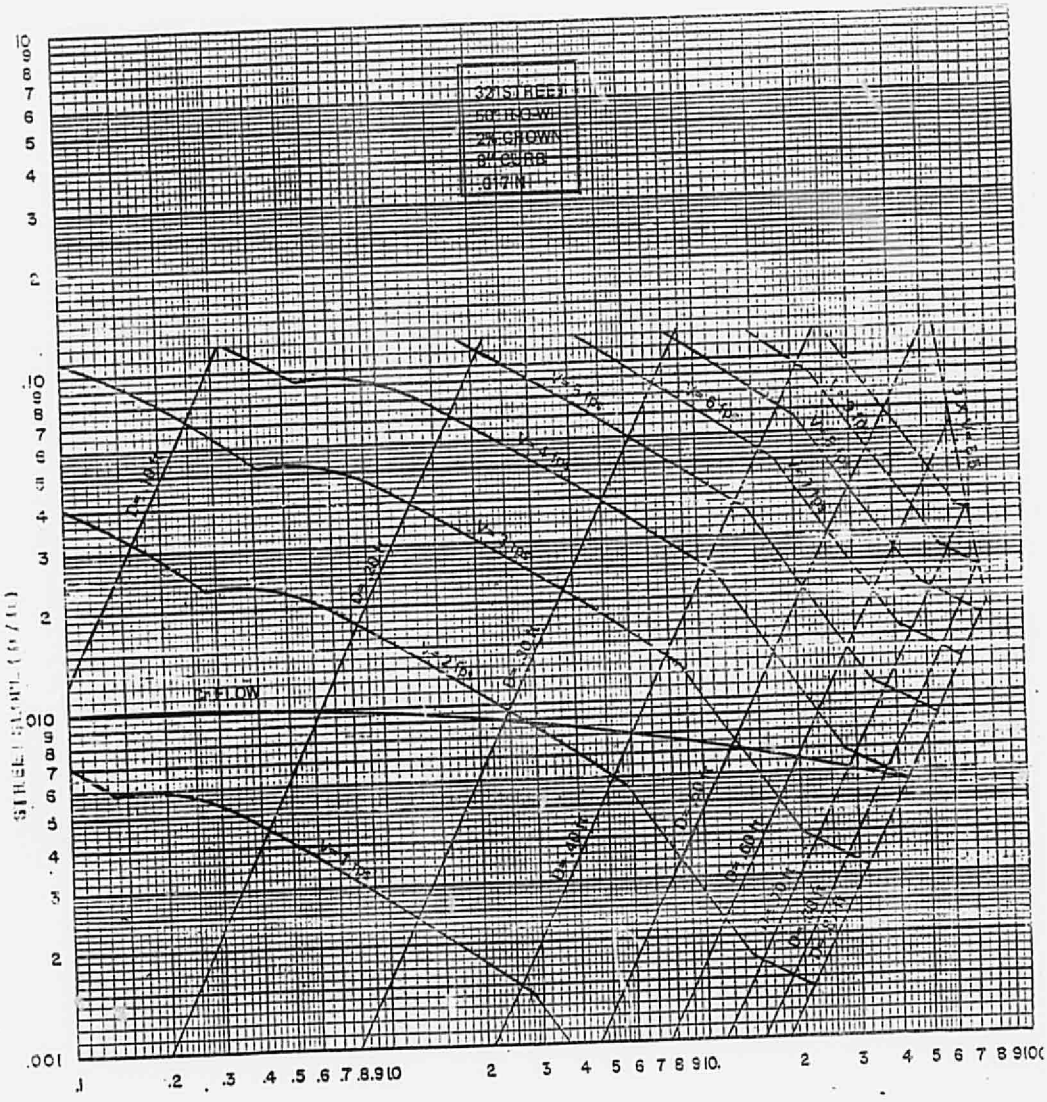
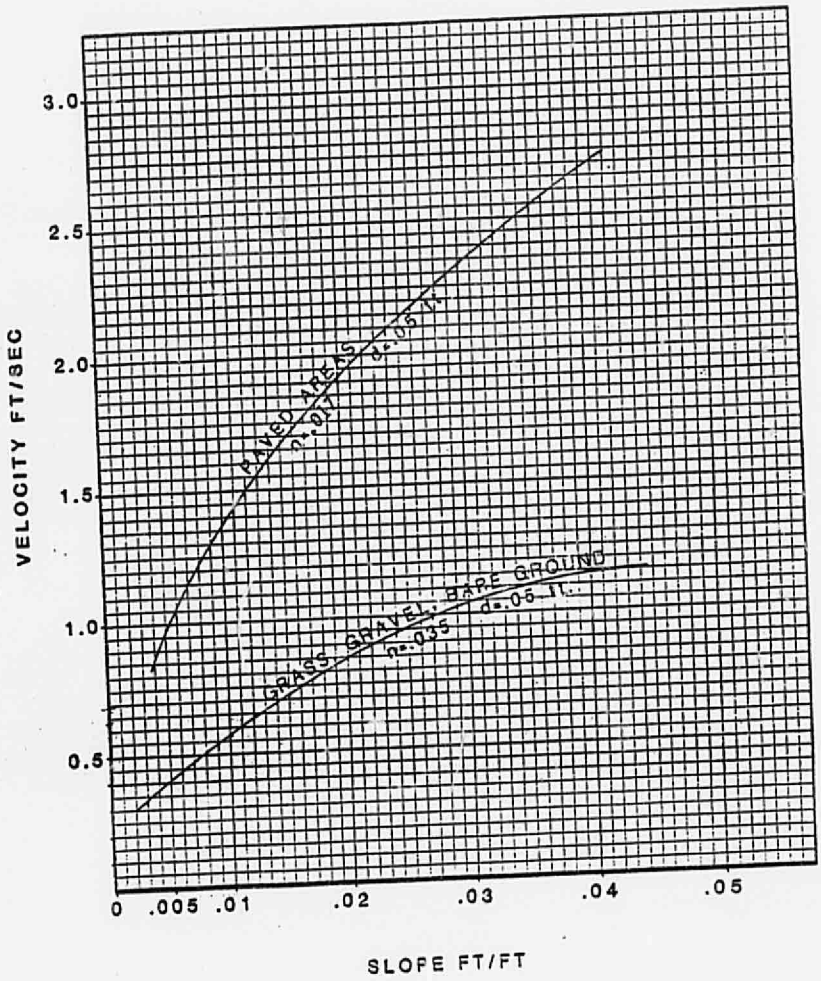


PLATE 22.3 D-1

REV. 3-83

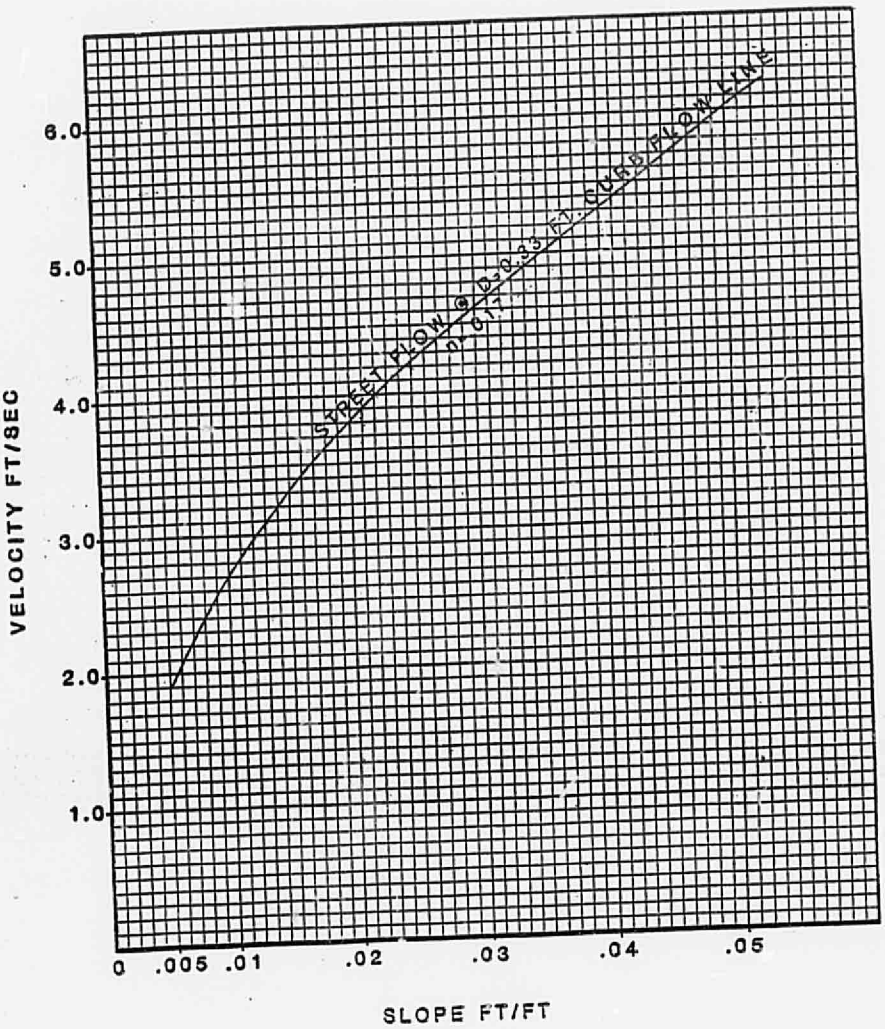
OVERLAND FLOW SEGMENTS

VELOCITY DETERMINATIONS FOR Tc CALCULATIONS

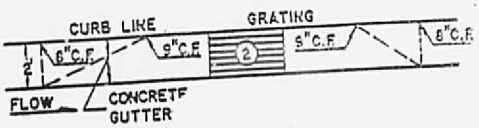


STREET FLOW SEGMENTS

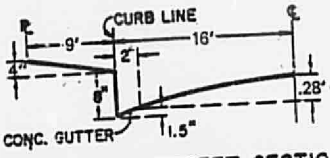
VELOCITY DETERMINATIONS FOR Tc CALCULATIONS



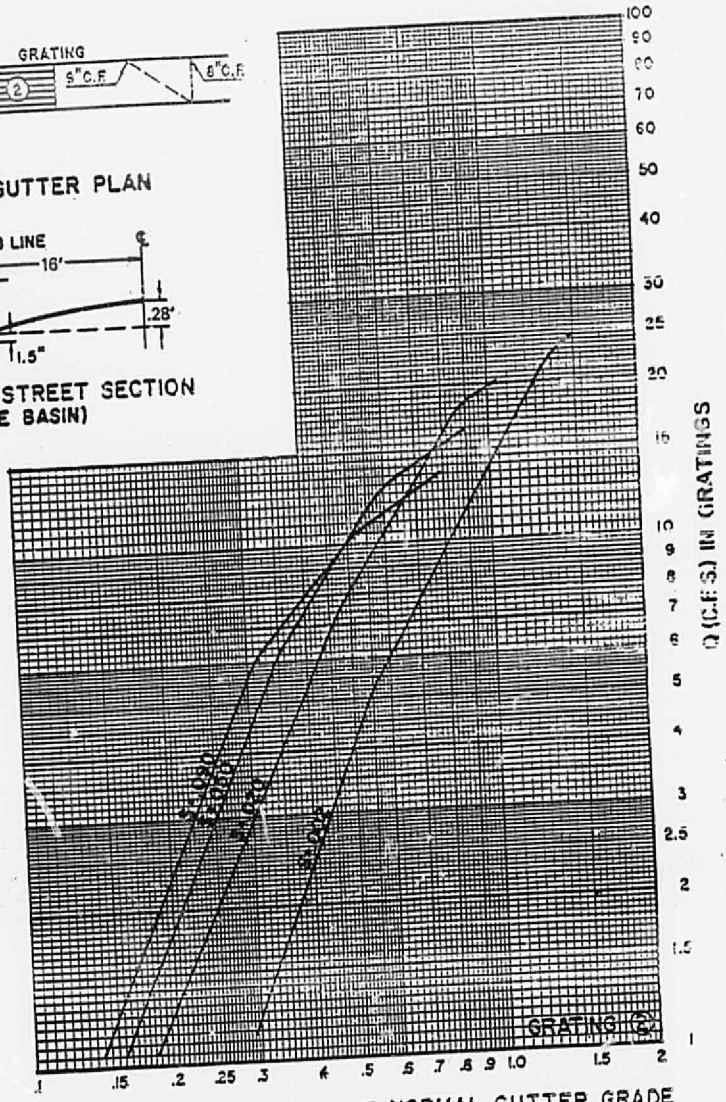
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN

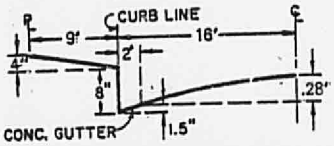


TYPICAL HALF STREET SECTION
(ABOVE BASIN)

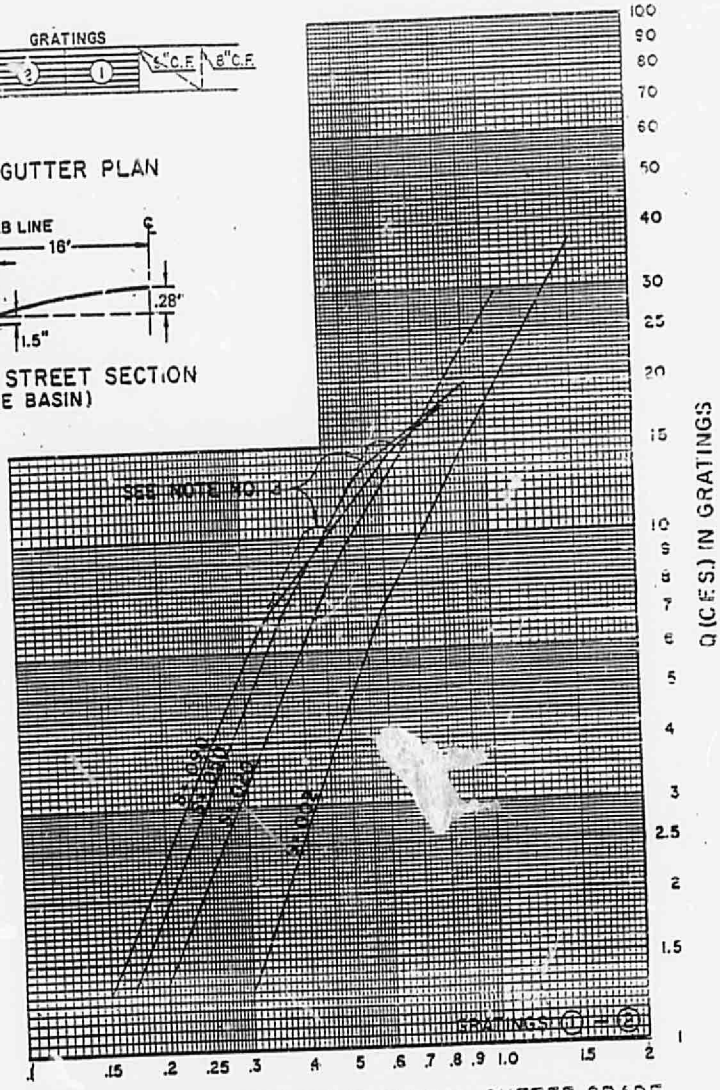


GRATING CAPACITIES FOR TYPE DOUBLE "C," AND "D"

GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE