HYDROLOGY L22/D19 FOUR PLANS

L 22/D19

4 PLANS

BURTON, LEYENDECKER & LEYENDECKER, INC.
CONSULTING ENGINEERS
ALBUQUERQUE LAS CRUCES

June 16, 1980

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

Attn: Bruno Canigliano

RE: Mountain Shadows Estates

Dear Sir:

Enclosed are sheets 1 and 4 of the construction plans for the referenced project. These details show the proposed method of handling the drainage from the project area. Please let us know if additional information is required.

Sincerely,

Richard L. Burton, P.E.

RLB: kh

cc: Investor's Development Co.

3401 CARLISLE, N.E. • ALBUQUERQUE, NEW MEXICO 87110 • (505) 345-6636

BURTON, LEYENDECKER & LEYENDECKER, INC.
CONSULTING ENGINEERS
ALBUQUERQUE LAS CRUCES

June 16, 1980

N.M. State Highway Dept.
Right of Way Division
P.O. Box 3768, Station D
Albuquerque, NM 87190

Attn: Ms. Anita Rutledge

RE: Mountain Shadows Estates

Dear Ms. Rutledge:

Enclosed are 2 copies of a request for a utility permit for the installation of a 24" R.C.P. across the N.N.S.H.D. ROW.

Also enclosed are sheets 1 and 4 of the construction plans for Mountain Shadows Estates along with copies of the drainage report. If additional information is required to allow the owner to construct the drainage imporvements shown, please let us know.

Sincerely,

Richard L. Burton, P.E.

RLB:kh

cc: Investor's Development Co.
City of Albuquerque

3401 CARLISLE, N.E. • ALBUQUERQUE, NEW MEXICO 87110 • (505) 345-6636

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

June 19, 1980

L22-D19

Mr. Richard L. Burton
Burton, Leyendecker & Leyendecker, Inc.
3401 Carlisle Blvd. N.E.
Albuquerque, New Mexico 87110

Re: Mountain Shadow Estates

Dear Mr. Burton:

I find that notwithstanding the repeated verbal indications furnished to representatives of your office, I still don't have adequate information to accept your drainage plan. My objections are as follows:

1. No provisions are made for the collection or conveyance of the water originating from the east across this property; The offsite Area B, drains to this parcel and cannot be routed to the south, without the concurrence of the owner, nor can the southernmost one-fourth of Area A.

2. This office must receive a satisfactory design for the collection of the water from Canyon View Court and its conveyance to the lined highway ditch. Said conveyance must be through a rundown to insure that the runoff will not undercut or undermine the channel lining. Plan and profile for the facility must be provided.

3. The connection of the proposed 24" pipe to the highway ditch must be indicated.

Satisfactory compliance with the above will allow signature of the plat and approval of the construction plans.

Very truly yours,

Bruno Conegliano
Assistant City Engineer/Hydrology

BC/fs
cc - Richard Heller
Richard Leonard

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

July 18, 1980

Mr. Harley Parr
Chief Drainage Engineer
New Mexico Highway Department
P. O. Box 1149
Santa Fe, New Mexico 87503

Dear Mr. Parr:

This letter is to request clarification on the procedure that the City should follow before granting approval to development plans which result in conveyance of run off to New Mexico State Highway Department property. As an example I am including a copy of the plan submitted for Mountain Shadows Estates (Exhibit 1). This plan shows that water is deposited into the State Highway Department right-of-way at three locations:

1. Through a swale along the east property line.

2. Through a 24" pipe which should connect to the channel as shown on Exhibit 2.

3. Through a swale which begins at the southern end of the westernmost cul de sac discharging on to the inlet located on the highway department right-of-way.

In the past I have requested consulting engineers working for private developers or for the City, to obtain preliminary approval directly from your office but recent conversation with Mr. Dick Burton with Burton, Leyendcker and Leyendecker, indicates that you prefer these questions to be handled through the State Highway Department Office in Albuquerque.

Please advise us of the procedure that you want to be followed. Thank you.

Very truly yours,

Bruno Conegliano
Asst. City Engineer/Hydrology

BC/fs
cc - Richard Heller
Q. R. Kielich
Dick Burton

Memo to: Richard Heller

From: Bruno Conegliano R.C.

Re: Grading Plan for Mountain Shadow Estates

Date: August 7, 1980

After I had given ~~the~~ repeated indications that the grading plan was not satisfactory (see previous correspondence), Mr. Dick Burton came to my office today with a plan that is still not acceptable. In our conversation, he was rather belligerent and abusive; I am therefore requesting to be relieved from my obligation to have any further contact with said gentleman.

I am also asking you to inspect the grading plan to verify the validity of my objections that no continuity is provided between existing and proposed ground elevations along the perimeter of the property.

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

August 11, 1980

422-019

Mr. Richard L. Burton
Burton, Leyendecker & Leyendecker, Inc.
3401 Carlisle Boulevard, NE
Albuquerque, NM 87110

Re: Mountain Shadow Estates

Dear Mr. Burton:

Mr. Conegliano, of our office, has reviewed the grading plan, and I concur with his evaluation that the plan submitted does not satisfy the needs and requirements of our office. Obvious discrepancies are noted and marked in red, and they need to be corrected.

The primary concern in the review of the grading plan is the assurance that the natural ground elevation at the property line be preserved. This office is concerned with undercutting or overfilling along the boundary of any new development. Differences in elevation greater than 18 inches must be absorbed by retaining the walls or other structural means. Because of the difficulty of maintaining a slope steeper than 3:1, this is the maximum slope that is considered acceptable.

If you feel it is necessary, I will be available to discuss this matter further with you.

Sincerely,

Richard S. Heller

BC:lf
Enc.

BURTON, LEYENDECKER & LEYENDECKER, INC.
CONSULTING ENGINEERS
ALBUQUERQUE LAS CRUCES

August 12, 1980

L22-D19

RECEIVED
AUG 13 1980
CITY ENGINEER

Mr. Richard S. Heller
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Your letter concerning Mountain Shadows Estates dated August 11, 1980.

Dear Mr. Heller:

We were most interested in your statement in paragraph 2, last sentence, "Because of the difficulty of maintaining a slope steeper than 3:1, this is the maximum slope that is considered acceptable."

We would like to know the basis for this statement, i.e. is it, (1) City of Albuquerque policy that either cut and/or fill slopes should not exceed 3:1 in residential areas?

(2) Is this judgement of your office for this particular subdivision?

(3) Under what circumstances can a subdivision be approved with cut or fill slopes steeper than 3:1?

(4) If this is policy, when was it adopted as policy (i.e. on what date.)?

(5) If you consider it judgment of your office, what date did you make such a judgment.

We request that a reply to these questions be in writing.

Sincerely,

Richard L. Burton, P.E.

RLB:kh

3401 CARLISLE, N.E. • ALBUQUERQUE, NEW MEXICO 87110 • (505) 345-6636

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. L-22 DATE: 5/19/81

PLANNING DIVISION NO. _____

L22-D19

CONFERENCE RECAP

SUBJECT: MOUNTAIN SHADOW ESTATES

	WHO	REPRESENTING
ATTENDANCE:	C M EASTERLING	CITY ENGINEERING
	JIM LEYMON	MSM CONSULTANTS
	DAN GROCHOWSKI	"

FINDINGS:

1 POND BACKYARD GENERATED RUNOFF IN BACK YARDS

2 ALLOW REMAINDER TO FLOW TO STREET. CHECK ADEQUACY OF STORM DRAIN AND CURB CUT FOR REVISED Q's.

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: Charles M Easterling SIGNED: Jim Leymon

TITLE: P.A.C.E./HYDRO TITLE: Project Engineer

DATE: 5/19/81 DATE: 5.19.81

Mtn Shadow estates

The WYLIE CORPORATION

P. O. BOX 3921
ALBUQUERQUE,
NEW MEXICO,
87190

PHONE (505)
821-3622

October 7, 1981

Mr. Richard S. Heller
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Mountain Shadow Estates - Phase I
Job No. 1107

Dear Mr. Heller:

1230 ~~1203~~ Revised

Reference is made Drawing No. 1107, Sheet 8 of 9, regarding the Type "A" catch basins located at stations 2 + 22.44 and 2 + 52.60 on the referenced project.

It is requested that two (2) Type "C" catch basins single be used in lieu of the Type "A" catch basins.

Your approval and/or comments would be appreciated.

Very truly yours,

Roy L. Phares

~~Roy~~ L. Phares

Called Roy Phares 10/19/81 informed him that drawing 1230 had the 2 type "C" inlets that were up

cc: Master File 8110-57
bcc: A & W Structures

2021436

RSH ~~RA~~ ADM
HRO SUR
CDS COUN
DES SEC
INSP FILE
HYDRO RETURN

Handle

RECEIVED
OCT 9 1981
CITY ENGINEER

Jim Finch

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1936

An International
Professional Services
Organization

Engineering, Surveying, Energy Services,
Planning, Construction Services

November 9, 1983

L-22
D19

Mr. Fred Aguirre
Civil Engineer/Hydrology
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87192

RE: Mountain Shadow Estates Grading Permit

Dear Fred:

Transmitted herewith are two copies of the previously approved Grading Plan for subject project for your review and reapproval. The cross-hatched area has been constructed per this plan. At present we are updating the construction plan set for the remaining areas to comply with the DPM and Cash Paving No. 31 for reentry of the plan set. The design and concept of the plans will not change.

In order to facilitate the beginning of grading operations this letter will serve as an application request for a grading permit (per DPM Vol. II p. 8-20).

If you have any questions, please call.

Very truly yours,

MSM/SP Group

Dan Grochowski

Dan Grochowski, P.E. & L.S.
Project Manager

DG:se
Enclosure

RECEIVED
NOV 10 1983
ENGINEERING

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1938

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- Energy Services

November 16, 1983

Mr. Fred Aguirre
Civil Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87192

RE: Mountain Shadow Estates Rough Grading Permit

Dear Fred:

In order to satisfy the Erosion Control requirement needed to obtain a rough grading permit for subject project we submit the following:

Erosion Control

During rough grading of the project site and until all improvements are completed, an 18 inch high berm with 3 to 1 side slopes shall be constructed and maintained along the western and southern boundaries of the site.

If you have any questions, please call.

Very truly yours,

MSM/SP Group

Dan Grochowski

Dan Grochowski P.E. & L.S.
Project Manager

DG:lp

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

READING FILE

L22D19

November 23, 1983

Dan Grochowski
MSM/SP Group
2601 Wyoming Bouleverd NE Suite F
Albuquerque, NM 87112

RE: ROUGH GRADING PLAN DATED NOVEMBER 23, 1983

Dear Mr. Grochowski:

The referenced rough grading plan is approved.

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

Sincerely,

Fred J. Aguirre
Design Hydrologist

FJA:mrk

MSM

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1936

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December 27, 1983

Mr. John Armstrong
Civil Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87192

RE: Mountain Shadow Estates (L22 - D19)

Dear John:

Regarding the drainage of subject site, a drainage report was prepared by the firm of Burton, Leyendecker & Leyendecker, Inc. in April 1980. In that report the site was divided into two basins. The east half draining to the catch basins in Panorama Loop, which have been constructed as a part of Phase I, and the west half to a rundown in Canyon View Court.

The construction of Phase I of the site has not altered the concept of two basins as envisioned in the original report. The western boundary of Phase I coincides with the western boundary of the east half drainage basin.

Based on the above, we request approval of the re-entered construction drawings for Mountain Shadow Estates - Phase II (Dwg. No. 1374) and Mountain Shadow Estates - Phase III (Dwg. No 1998).

Very Truly Yours,

MSM/SP Group

Dan Grochowski

Dan Grochowski, P.E. & L.S.

DG:lp

RECEIVED
DEC 27 1983
HYDROLOGY SECTION

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1936

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- Energy Services

March 5, 1984

Mr. Don Arp
District Engineer
New Mexico State Highway Department
P.O. Box 3768, Station D
Albuquerque, New Mexico 87190

RE: Mountain Shadows Eststes Phase III Utility Permit 1.22

Dear Mr. Arp:

Information pretaining to the application of a utility permit for the referenced project is presented in this letter as required by the Federal Highway Administration.

The utility consists of an open channel storm drain that serves Mountain Shadows Estates Sub-Division. The proposed asphalt lined channel carries storm run-off from Canyon View Court south for 56' where it ties into an existing drainage side channel of I-40. The connection is at Sta. 406+13 and is perpendicular to the existing concrete lined channel.

Construction equipment must enter the construction site through the north R.O.W. fence. Access is not available from the highway traffic lanes due to the existing drainage channel. Construction equipment will be active only between the drainage channel and the R.O.W. fence. The fence will be maintained and access will be allowed to construction equipment and vehicles only.

Sincerely,

MSM/SP Group

Rick Beltramo
Design Engineer

RB:lp
Enclosure

RECEIVED
MAR 26 1984
HYDROLOGY SECTION

FORM NO. M-202
Rev. 9-11-78

APPLICATION FOR PERMIT TO INSTALL UTILITY FACILITIES WITHIN PUBLIC RIGHT OF WAY

TO: NEW MEXICO STATE HIGHWAY DEPARTMENT
P. O. BOX 1149
SANTA FE, NEW MEXICO 87503

Permit No. _____
[X] New Installation
[ ] Renewal Permit
[ ] Relocation
[ ] Remain in Place

1. Pursuant to New Mexico Statutes Annotated, 1953 Compilation, Sections 55-7-19 and 55-2-7, the undersigned Conners Corporation

Address: 10425 Sierra Bonita N.E, Albuquerque, New Mexico 87111

herein makes application to use highway rights of way to install:

Size and Type of Facility 10' Asphalt lined channel (Storm Drain)

in the following location: N. M. Project No. I-040-3 (8) 169, S. R. No. I-40,

Hwy. Station 406+13 to Hwy. Station _____,

County, Section Bernalillo, Township 10N, Range E

2. For the purpose of this application "within" shall be construed as meaning "on, over, under, across or along."

a. "Engineer" shall be construed as meaning the District Highway Engineer of the New Mexico State Highway Department or his representative.

b. "Applicant" shall be construed as meaning the individual, firm, corporation, association, governmental subdivision, or other organization making application, or the successors of any of the above.

c. "Facility" shall be construed as meaning, but not limited to, and publicly, privately, cooperatively, municipally or governmentally owned facility used for carriage, distribution or transmission of water, gas or electricity, oil and products derived therefrom, sewage, steam or other projects carried by means of pipelines, conduits, wires, culverts, ditches, conveyors or other methods.

d. If application is for a parallel installation, justification as to why private right may not be utilized must be furnished.

3. Applicant proposes to relocate, install or leave facility across feet within the north right of way line. The proposed installation shall be:

(See Map)	Subsurface	(See Map)
(Crossing or Parallel)	(Subsurface or Overhead)	(Boring, Jacking or Pavement Cut)

a. If Applicant requests installation by pavement cut, complete justification therefore shall be submitted by attachment.

b. Where application for pavement cut is justified, the application may be held in abeyance pending receipt of cash bond in an amount to be fixed by the Engineer.

4. There is attached hereto a diagrammatic dimensioned drawing showing the location of existing and/or proposed installation referenced to roadway and right of way, right of way lines, any access control lines, distance of proposed installation above or below grade, highway stationing, identification of materials to be used and any other pertinent data. If application is for parallel installation, nature of adjacent land use shall be shown. Proposed installations on or in bridges or other structures, or for the installation of any structures, will require detailed structural drawings.

5. Applicant desires this permit to be in affect for 25 years. Permit will not be issued for a period longer than 25 years, must be renewed upon expiration and the burden of timely renewal is on the Applicant. The Applicant shall formally notify the engineer of actual commencement and completion of construction of the installation. The Applicant shall also formally notify the Engineer of removal or abandonment of the facility, or relinquishment of the permit.

6. The signing of the application by the Engineer and returning it to the Applicant shall validate this application as a permit. The granting of this permit shall not be construed as granting any easement or property right.

7. Servicing of facilities will not be permitted within the access control lines on any controlled access project. Should an emergency occur, the Applicant shall notify the Engineer and shall provide such flagmen, flashers, warning or other safety devices as required by the Engineer. All routine maintenance shall be performed from outside any access control lines.

8. The relocation or installation of facilities within public right of way shall be in strict conformance with all provisions of this application, drawing and the Instructions for Utility Permits, as they may be modified by the Engineer, and no departure therefrom may be made without the written consent of the Engineer. All facilities shall be so placed that they will not interfere with nor endanger any roadway features nor other existing facilities. All construction of facilities shall be subject to the inspection and approval of the Engineer. All such work shall be performed so that danger, inconvenience and delay to the traveling public will be held to a minimum. Protection and handling of traffic during the installation are the responsibility of the Applicant and must be approved by the Engineer.

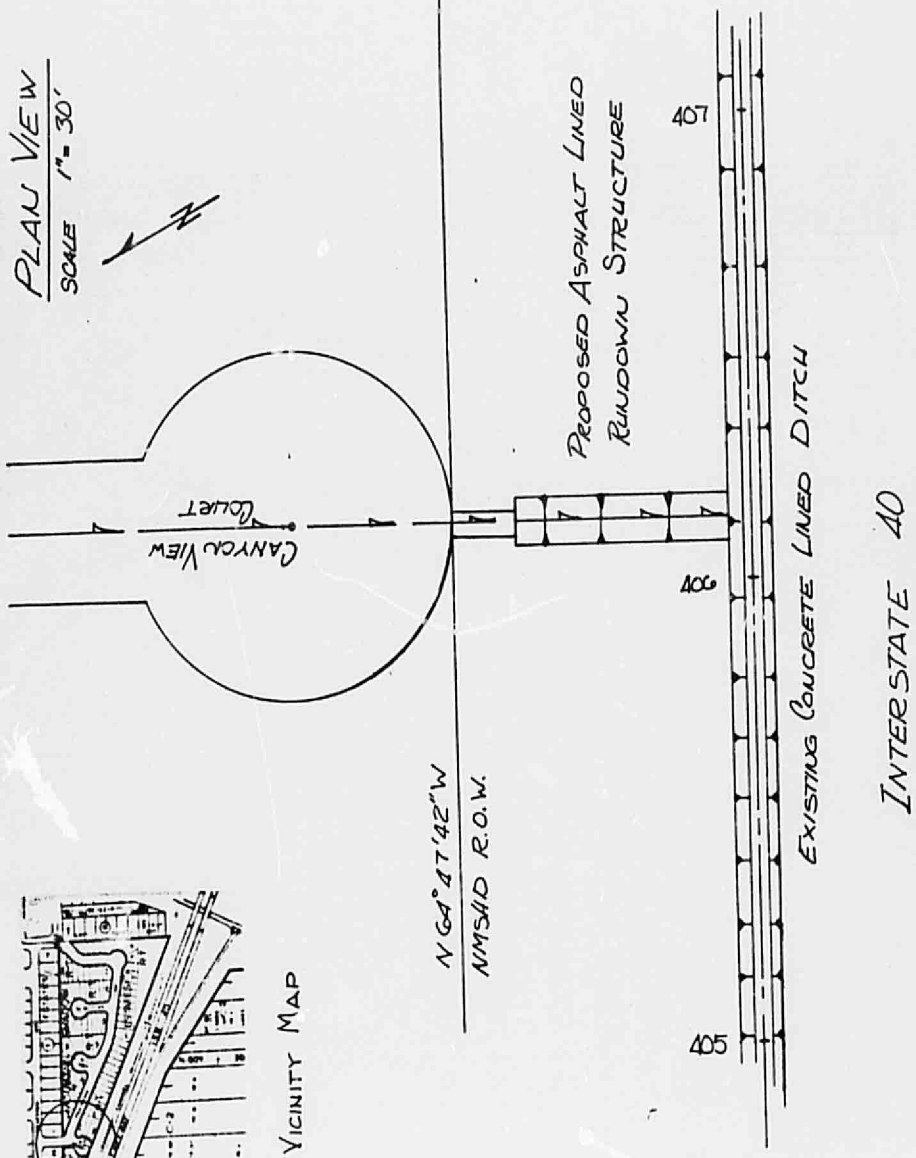
9. The Applicant will, except as otherwise ordered by the Engineer, restore the public right of way, and all bridges or other structures thereon or adjacent thereto which have been altered or affected by facility installation performed hereunder, in accordance with sound construction practices and the Engineer's specifications, and shall cause the work to be done in a workmanlike manner. If any damage is caused to the highway right of way or to any bridge, structure or improvement thereon or adjacent thereto by reason of the installation, maintenance, alteration or removal of such facilities or other appurtenances, the Applicant will reimburse the Engineer the full amount thereof promptly upon demand by the Engineer, provided, however, that the obligation imposed under this paragraph shall not apply in the event the damage resulted from causes beyond the control of

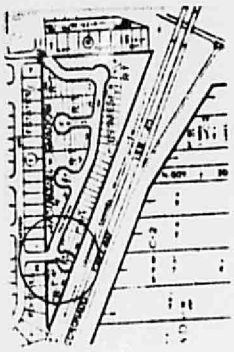
MSM/SP GROUP

ALBUQUERQUE N.M.

By RB Date 3/2/84 PROJECT MOUNTAIN SHADOWS PHASE III sheet No. 2 of 4

Checked By ____ Date ____ PLAN VIEW Job No. 0604006 84

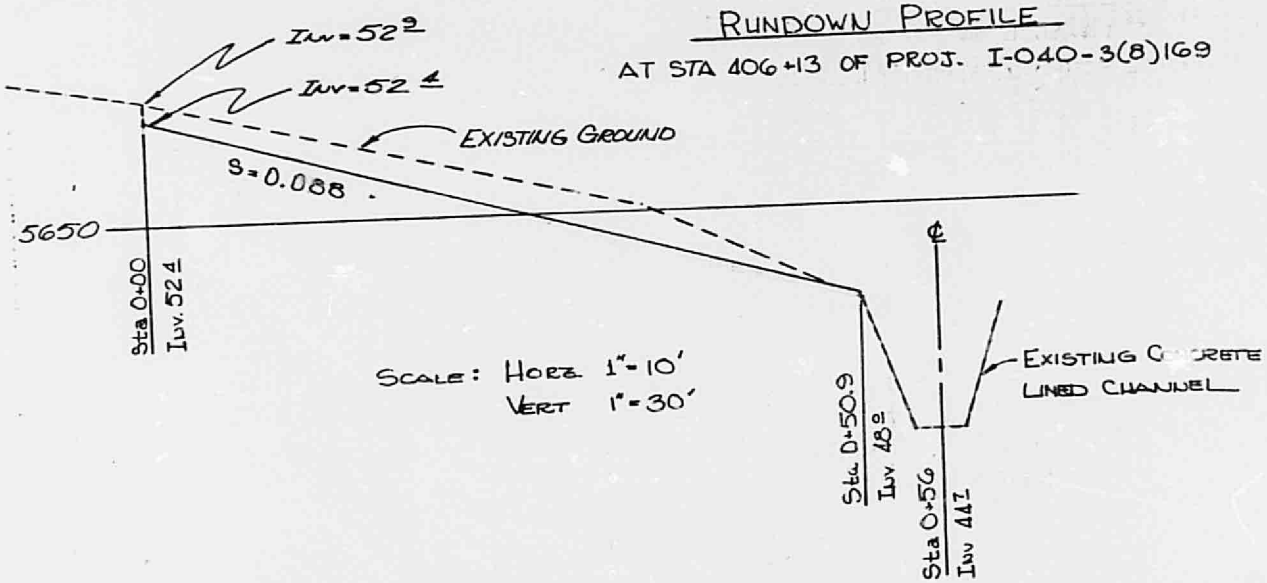


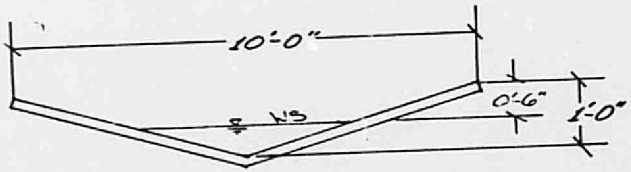


VICINITY MAP

RUNDOWN PROFILE

AT STA 406+13 OF PROJ. I-040-3(8)169





SCALE: NTS

Q = 18.6 cfs

d = 6 in

V = 12.5 fps

free board = 6 in

MSM/SF GROUP

By RB Date 3/12/84 PROJECT MOUNTAIN SHADOWS PHASE III Sheet No. 3 of 4

Checked By ____ Date ____ PROFILE & X-SEC Job No. 0040G084

ALBUQUERQUE N.M.

4/10/84

Michelle,

I dont know what to do with this. It is a submittal for file update. However, there isn't a submittal sheet and I don't even know who to respond to since Dan Grochowski left the firm and I think he is the one I spoke to about it. I can't read the signature at the bottom of the transmittal form.

BA

FORM NO. M-202
Rev. 10-1-75

APPLICATION FOR PERMIT TO INSTALL UTILITY FACILITIES WITHIN PUBLIC RIGHT OF WAY

TO: NEW MEXICO STATE HIGHWAY DEPARTMENT
P. O. BOX 1149
SANTA FE, NEW MEXICO 87503

Permit No._____
- [x] New Installation
- [ ] Renewal Permit
- [ ] Relocation
- [ ] Remain in Place

1. Pursuant to New Mexico Statutes Annotated, 1953 Compilation, Sections 55-7-19 and 55-2-7, the undersigned City of Albuquerque

Address: _____

herein makes application to use highway rights of way to install:

Size and Type of Facility 12" Concrete Pipe (Storm Drain)

in the following location: N. M. Project No. I-040-3(8) 169, S. R. No. I-40

Hwy. Station 412 + 20 to Hwy. Station _____

County, Section Bernalillo, 27, Township 10 N. Range 4 E

2. For the purpose of this application "within" shall be construed as meaning "on, over, under, across or along."

a. "Engineer" shall be construed as meaning the State Highway Engineer of the New Mexico State Highway Department or his representative.

b. "Applicant" shall be construed as meaning the individual, firm, corporation, association, governmental subdivision, or other organization making application, or the successors of any of the above.

c. "Facility" shall be construed as meaning, but not limited to, any publicly, privately, cooperatively, municipally or governmentally owned facility used for carriage, distribution or transmission of water, gas or electricity, oil and products derived therefrom, sewage, steam or other products carried by means of pipelines, conduits, wires, culverts, ditches, conveyors or other methods.

d. If application is for a parallel installation, justification as to why private right may not be utilized must be furnished.

Applicant proposes to relocate, install or leave facility across feet within the north right of way line.

The proposed installation shall be:

(see map)	Subsurface	(see map)
(Crossing or Parallel)	(Subsurface or Overhead)	(Boring, Jacking, or Pavement Cut)

a. If Applicant requests installation by pavement cut, complete justification therefore shall be submitted by attachment.

b. Where application for pavement cut is justified, the application may be held in abeyance pending receipt of cash bond in an amount to be fixed by the Engineer.

4. There is attached hereto a diagrammatic dimensioned drawing showing the location of existing and/or proposed installation referenced to roadway and right of way, right of way lines, any access control lines, distance of proposed installation above or below grade, highway stationing, identification of materials to be used and any other pertinent data. If application is for parallel installation, nature of adjacent land use shall be shown. Proposed installations on or in bridges or other structures, or for the installation of any structures, will require detailed structural drawings.

5. Applicant desires this permit to be in affect for 25 years. Permit will not be issued for a period longer than 25 years, must be renewed upon expiration and the burden of timely renewal is on the Applicant. The Applicant shall formally notify the Engineer of actual commencement and completion of construction of the installation. The Applicant shall also formally notify the Engineer of removal or abandonment of the facility, or relinquishment of the permit.

6. The signing of the application by the Engineer and returning it to the Applicant shall validate this application as a permit. The granting of this permit shall not be construed as granting any easement or property right.

7. Servicing of facilities will not be permitted within the access control lines on any controlled access project. Should an emergency occur, the Applicant shall notify the Engineer and shall provide such flagmen, flashers, warning or other safety devices as required by the Engineer. All routine maintenance shall be performed from outside any access control lines.

8. The relocation or installation of facilities within public right of way shall be in strict conformance with all provisions of this application, drawing and the Instructions for Utility Permits, as they may be modified by the Engineer, and no departure therefrom may be made without the written consent of the Engineer. All facilities shall be so placed that they will not interfere with nor endanger any roadway features nor other existing facilities. All construction of facilities shall be subject to the inspection and approval of the Engineer. All such work shall be performed so that danger, inconvenience and delay to the traveling public will be held to a minimum. Protection and handling of traffic during the installation are the responsibility of the Applicant and must be approved by the Engineer.

9. The Applicant will, except as otherwise ordered by the Engineer, restore the public right of way, and all bridges or other structures thereon or adjacent thereto which have been altered or affected by facility installation performed hereunder, in accordance with sound construction practices and the Engineer's specifications, and shall cause the work to be done in a workmanlike manner. If any damage is caused to the highway right of way or to any bridge, structure or improvement thereon or adjacent thereto by reason of the installation, maintenance, alteration or removal of such facilities or other appurtenances, the Applicant will reimburse the Engineer the full amount thereof promptly upon demand by the Engineer; provided, however, that the obligation imposed under this paragraph shall not apply in the event the damage resulted from causes beyond the control of the Applicant. All such facilities located within the right of way shall at all times be kept in such repair so as not to damage the highway, inconvenience or endanger the traveling public and shall be kept free from advertisements, posters and the like.

82 23637

DRAINAGE EASEMENTS

MOUNTAIN SHADOW ESTATES

A three (3) foot wide drainage easement over, across and through the westerly three (3) feet of Lots fifty-nine (59) through sixty-four (64) inclusive.

A three (3) foot wide drainage easement over, across and through Lot sixty-five (65) beginning at the lot corner common to Lots sixty-six (66) and sixty-five (65); thence S 31° 50' 01" E, 1.79 feet to the beginning point of the herein described easement; thence along the centerline of said easement N 88° 35' 09" W, 33.19 feet; thence S 45° 42' 21" W, 39.75 feet; thence S 00° 00' 09" E, 22.56 feet to a point on the lot line common to Lots 64 and 65, said point being the terminus point of the herein described easement.

A three (3) foot wide drainage easement over, across and through Lots seventy (70) through seventy-five (75) inclusive. Beginning at the southeast corner of Lot 75; thence N 79° 30' 52" W, 20.34 feet to the point of beginning of the herein described easement; thence N 00° 00' 09" W, 156.03 feet to the terminus point of the herein described easement. All contained in Mountain Shadow Estates as the same are shown and designated on the plat thereof recorded in the office of the County Clerk of Bernalillo County, New Mexico on December 31, 1980 and refiled on June 9, 1981.

CONNORS CORPORATION

BY: _____
WILLIAM E. CONNORS President

STATE OF NEW MEXICO
COUNTY OF BERNALILLO

The foregoing instrument was acknowledged before me this 30th day of April, 1982, by WILLIAM E. CONNORS, President of CONNORS CORPORATION a New Mexico Corporation, on behalf of said Corporation.

My commission expires 7/5/85

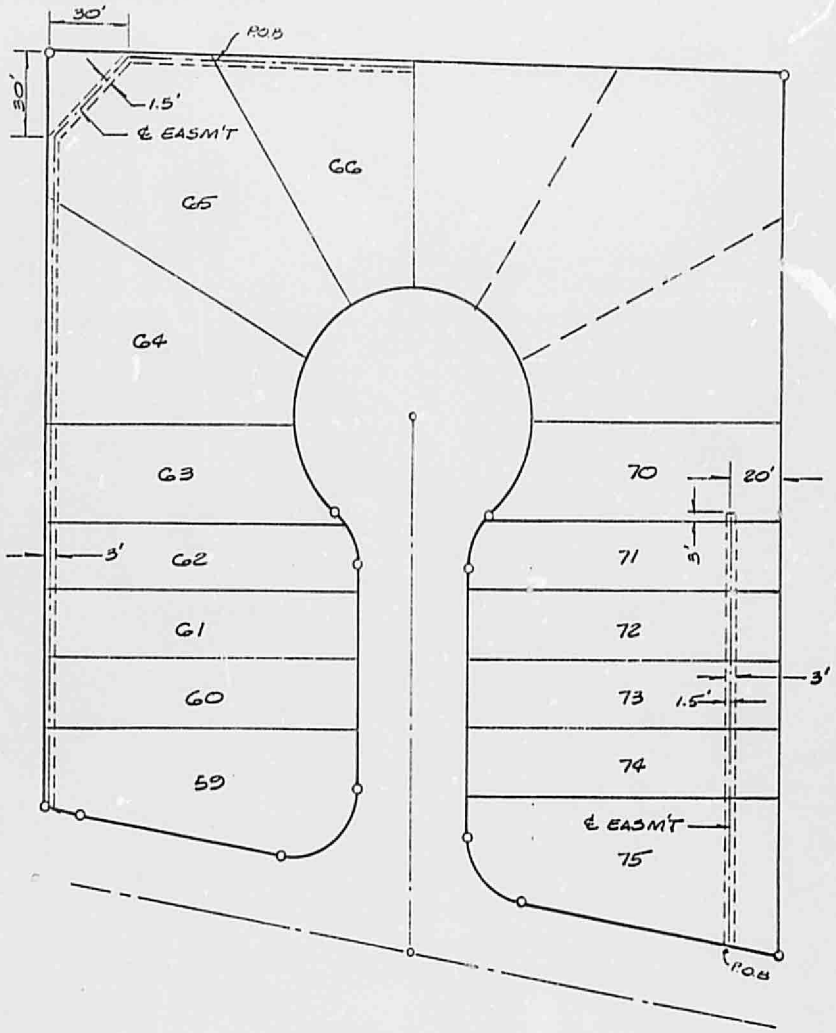
_____
NOTARY PUBLIC

See Attached Exhibit

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED

'82 MAY -5 P3:31

BK ___ PG ___
COUNTY CLERK


30'
30'
POB
1.5'
℄ EASM'T
66
65
64
63
62
61
60
59
3'
70
20'
71
5'
72
73
1.5'
3'
74
℄ EASM'T
75
POB

ENGINEERING REPORT

MOUNTAIN SHADOW ESTATES

Drainage Report

April 1980

BURTON, LEYENDECKER & LEYENDECKER, INC.

CONSULTING CIVIL ENGINEERS

ALBUQUERQUE

LAS CRUCES

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Drainage Report for Mountain Shadow Estates

Introduction: Mountain Shadow Estates Addition is a Subdivision within the City of Albuquerque near the intersection of I-40 and Tramway Blvd. See vicinity map (fig.1). The parcel is zoned R-T for residential townhouses and the plat has been prepared to comply with the applicable sections of the City/County Comprehensive Zoning Ordinances for townhouses. The tract of land consists of a total of 10.075 acres, it slopes generally from Northeast to Southwest and is crossed by a developed arroyo in the NE to SW direction. See contour map (fig. 2). The arroyo has been intercepted up stream by a recently constructed drainage channel along the North-South alley in Block "L", Cena Roco Addition and in a portion of Sky Line Road. This construction has effectively eliminated drainage across the property and has allowed the filling of the arroyo and left only a local drainage problem to be dealt with. See (fig. 3 memorandum on drainage from Public Works to Planning Department).

Proposed Drainage: The owner proposes to use back yard ponding areas to reduce the drainage from the subdivision to a quantity no greater than the current flow from the property.

Proposed Drainage of Water Not Ponded: Panorama Blvd. has a drainage area of 4.6 acres tributary above the subdivision. This will produce a flow at its entrance to the subdivision at the Northeast Corner. In addition drainage area No. 1 which consists of all the area East of the proposed drainage easement has an area of 5.293 acres. (See figure 4) The developer proposes to collect this flow in drop inlets and direct the flow into the highway drainage channel along I-40. The 4.029 acres from this drainage easement to the cul-de-sac known as Canyon View Circle will collect in the cul-de-sac then go into a drop inlet and into the NMSHD Channel.

The construction will divert drainage from an area of 0.4 acres which drains onto the site now (see figure 2, area B) around the subdivision. This may present a problem with water running along the East side of the fence. However there will be extensive upgrading of the area with the construction of the freeway ramp and also the problem could be solved by providing some rip-rap down the back side of the wall. Therefore, we do not believe it is a significant problem.

CALCULATIONS FOR BACKYARD PONDING

Proposed Drainage Plan: The fully developed property will be covered as follows:

Streets ----	Length (1585.62) (32)^2	50,739.85 ft.^{2}
3 Culde-sacs --	(3430 (9) + 2.5(180)	10,671.00
	SUB-TOTAL	61,410.84
Sidewalks --	(1585.62) (2) + 3(2.5) 188 5 =	22,906.20
Driveways ---	(20)(84)(18) =	30,240.00 ft.^{2}
Roof Tops ---------		127,200.00 ft.^{2}
Planted Areas and Ponding Areas -----		197,110.00 ft.^{2}

Estimated runoff at present: 100 year storm
(0.40)(10.075)(2.5 = 10.075 cfs.

Estimate after development

$$\frac{(0.40)\ 4.525}{10.075} + \frac{(0.95)\ (5.550)}{10.075} = 0.7029$$

(0.7029)(10.075)(2.5) = 17.706

Runoff will remain the same if ponding areas contain 43.5% of water.

Try ponding all water from Roofs and Back yards:

Roof area ------		127,200.00 ft.^{2}
Run-off -------	(0.95)(2.9)(2.5)	6.93 cfs.
Back yard -----	(15)(35)(84) =	44,100.00 ft.^{2}
Run-off -------	(0.40)(1.01)(.25) =	1.01 cfs.
TOTAL RUN-OFF FOR YARDS AND ROOF TOPS -------		7.94 cfs.

Ponding this area will reduce run-off to approximately 10 cfs. or a number similar to the present run-off.

(1514)(2.5)(0.95) ÷ 12 = 299 ft.^{3}

(15)(35)(2.5)(0.40) ÷ 12 = 31 ft.^{3}

330 ft.^{3}

$$\frac{330}{(15)(35)}\ 2 \qquad 0.62 \text{ ft. deep}$$

Ponding Volume in each yard should be 330 ft.^{3}

CALCULATIONS FOR FLOW FROM THE SUBDIVISION

Design Assumptions

Hydrology -

Storm runoff - 100 year Q = CIA

1. East inlet

drainage area - 4.6 Ac. Vacant Land
Lots 30, 1-10, 59-84
Street & drive pads

I (intensity)

t_c = 700' overland + 800' gutter

Fig. 4-6 HSD & HCP
overland -
L = 700'
H = 16'
t_c = 5.0 min.

Gutter
L = 800'
H = 20'
t_c = (0.2)(6) = 1.2 min.

t_c = 6.2 min.
I = 6.0"/hr.

LOT NUMBER	AREA (SQ. FT.)	LOT NUMBER	AREA (SQ. FT.)	LOT NUMBER	AREA (SQ. FT.)
1	5958	29	3260	57	3016
2	3000	30	3294	58	6135
3	3000	31	3328	59	1553
4	3000	32	3362	60	3000
5	3000	33	3396	61	3000
6	3018	34	3430	62	3001
7	3778	35	5152	63	3617
8	5673	36	3222	64	5221
9	3611	37	3058	65	7111
10	3302	38	4081	66	4363
11	3109	39	4064	67	4214
12	3186	40	3018	68	7119
13	3231	41	3159	69	1870
14	3275	42	5035	70	3617
15	3319	43	15186	71	3001
16	3363	44	7815	72	3000
17	3407	45	3366	73	3000
18	3451	46	3360	74	3000
19	3495	47	3135	75	5371
20	5087	48	3439	76	4717
21	3840	49	3271	77	3000
22	3224	50	3522	78	3000
23	3238	51	3655	79	3008
24	3273	52	4363	80	3205
25	3013	53	4214	81	3808
26	3104	54	7119	82	3422
27	3171	55	5511	83	3008
28	3224	56	3761	84	6087

FOOTHILL ESTATES
A SUBDIVISION
(FILED JUNE 21, 1960,
BOOK D2, PAGE 103)

A - (area) = Lots + Vacant Land + Streets + 16' drives

Lots - 175 884 SF = 4.04 Ac.

Vacant Land - 4.6

Streets - 41.25 x length

Length = 750 + 200 = 950

Area = 41.25(950) = 39,188 SF
= 0.90 Ac.

drive pads - (16')(18)(23) = 6624 SF
= 0.15 Ac.

C - Vacant Land - 0.35

Lots - 0.25

Streets & pads - 1.0

Weighted C - 4.6 Ac - 0.35

- 4.04 Ac.- 0.25

- 1.05 Ac.- 1.00

9.69

$$(4.6)(.35) + (4.04)(.25) + (1.05)(1) = 9.69\ (C)$$

$$C = \frac{(4.6)(.35) + (4.04)(.25) + 1.05}{9.69}$$

$$C = \frac{1.61 + 1.01 + 1.05}{9.69}$$

$$= 0.37$$

$$Q = CIA$$
$$= (0.37)(6.0)(9.69)$$
$$= \underline{21.5\ cfs}$$

East inlet

I - gutter flow only
Length 720'
H = 18
t_c = (6.0)(.2) = 1.2 min. : use 5 min.

I = 6.5

A - area - lots + street + pads

Lots - 21-35, 39-41, 44-58
Area = 157 152 SF
3.61 Ac.

Streets - (800')(41.25)
= 33,000 SF
= 0.76 Ac.

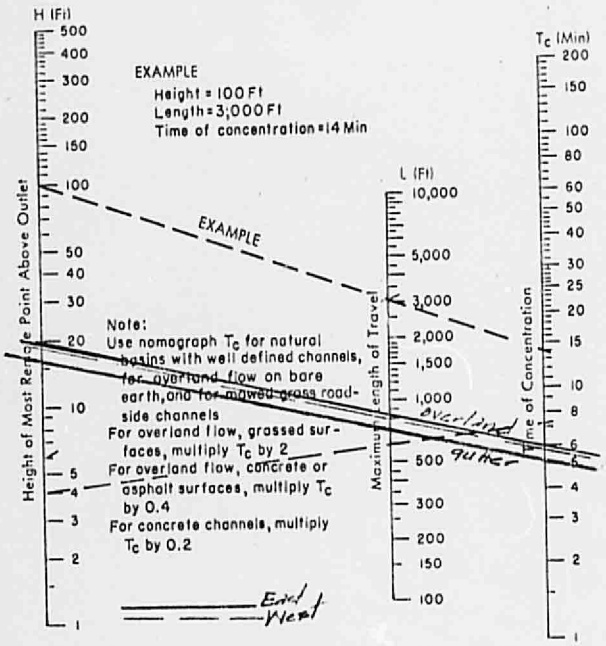
Pads - (16)(18)(18.5) = 5,328 SF
= 0.12 Ac.

C - 3.61 - 0.35
0.76 - 1.00
0.12 - 1.00
4.49

$$C = \frac{(3.61)(.35) + .88}{4.47}$$

= 0.48

Q = (.48)(6.5)(4.49)
= 14.0 cfs



Based on study by P. Z. Kirpich, Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

Fig. 4-6. Time of concentration of rainfall on small drainage basins.

der, channel, and 200 ft backslope of grassed pasture—giving a weighted $C = 0.35$. The channel grade is 0.5 per cent; and the outer edge of the contributing area is 4 ft above the channel. Location is near Washington, D.C.

The distance from the channel to the ridge of the area is 210 ft and that of the channel is 400 ft making $L = 610$ ft. The height of the most remote point above the outlet = 4 ft + (0.005 × 400) = 6 ft. From Fig. 4-6, the time of concentration, $Tc = 6.5$ min.

The rainfall intensity for a 6.5-minute duration and 10-year return period is 6.9 in. per hr. (Fig. 4-5).

The drainage area = 238 × 400 = 95,200 sq ft or

$$\frac{95{,}200}{43{,}560} = 2.2 \text{ acres}$$

Then $Q = 0.35 \times 6.9 \times 2.2 = 5.3$ cfs.

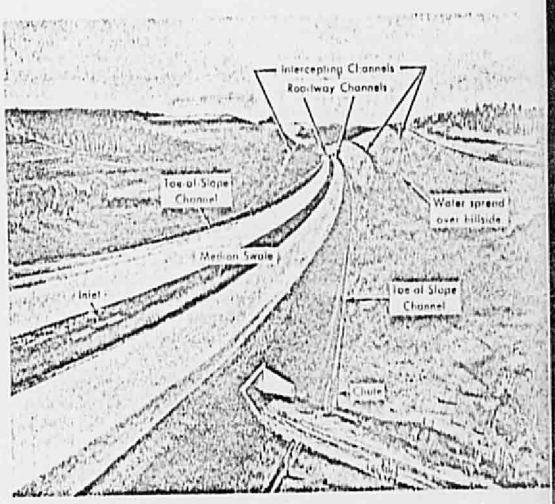


Fig. 4-7. Types of roadside drainage channels.

Section B—HYDRAULICS OF OPEN DRAINAGE CHANNELS

GENERAL

Before designing culverts, storm sewers and other drainage structures, it is well to consider the design of ditches, gutters, chutes, median swales, and other channels leading to these structures. Fig. 4-7.

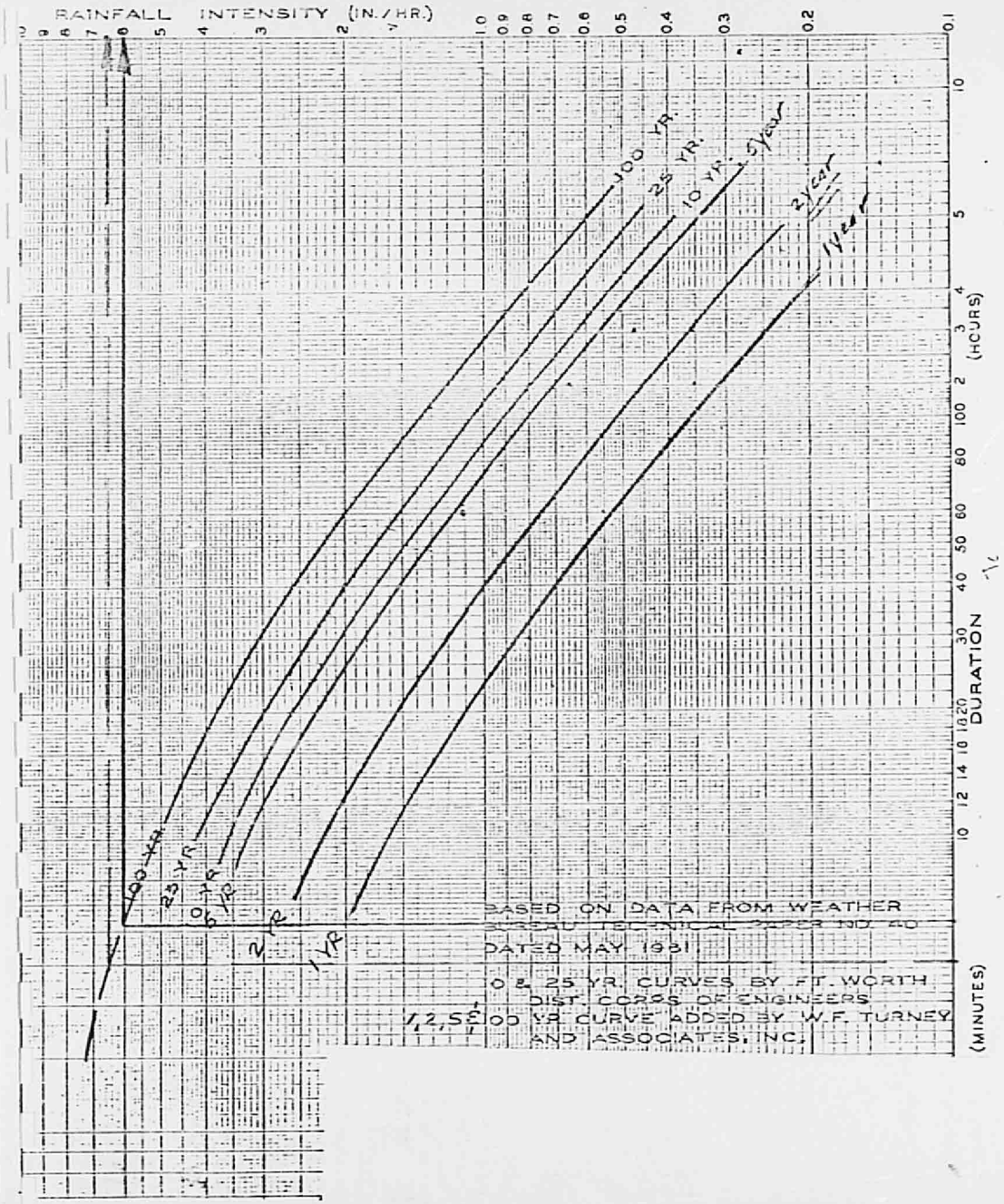
The design engineer with needs beyond the scope of this handbook will wish to refer to the publication, *Design of Roadside Drainage Channels*,[1] which includes numerous examples of calculations and a list of 55 authoritative references on all phases of the subject.

Rainfall and runoff, once calculated, are followed by design of suitable channels to handle the peak discharge with minimum erosion, maintenance and hazard to traffic.

The AASHO *Policy on Geometric Design of Rural Highways* recommends:

"Where terrain permits, roadside drainage channels built in earth should have side slopes not steeper than 4:1 (horizontal to vertical), and a rounded bottom at least 4 ft wide. (Minimum depth 1 ft to 3 ft.) . . . Dimensions can be varied by the use of different types of channel surfacing."

Systematic maintenance is recognized as essential to any drainage channel and therefore should be considered in the design of those channels.


RAINFALL INTENSITY (IN./HR.)
DURATION (HOURS)
(MINUTES)
100 YR.
25 YR.
10 YR.
5 year
2 year
1 year
100 YR.
25 YR.
10 YR.
5 YR.
2 YR.
1 YR.
BASED ON DATA FROM WEATHER BUREAU TECHNICAL PAPER NO. 40
DATED MAY 1961
10 & 25 YR. CURVES BY FT. WORTH DIST. CORPS OF ENGINEERS
1, 2, 5 & 100 YR. CURVE ADDED BY W.F. TURNEY AND ASSOCIATES, INC.

Hydraulics -

1. Gutter

Inlet No. 1 - 21.5 cfs to inlet = 21.5/2 = 10.75 cfs

" No. 2 - 14.0 cfs

Gutter Slop - 2.5%

Q = 9.85 cfs

$Q = VA$

$$V = \frac{1.49}{n} r^{3/2} s^{\frac{1}{2}}$$

$n = 0.013$ $A = \frac{1}{2}(16)(.33) = 2.64$

$r = a/p$ $P = .33 + 16 = 16.33$

depth = 0.33' $r = 0.16$

$s = 2.5\% = 0.025\text{-}1/1$

$$Q = \frac{1.49}{n} r^{2/3} s^{\frac{1}{2}} A$$

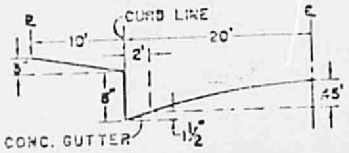
$$= \frac{1.49}{.013} (.16)^{.67} (.0025)^{.5} (2.64)$$

$= 4.43$ cfs

d = .67' street completely full

OFFICE STANDARD NO 108

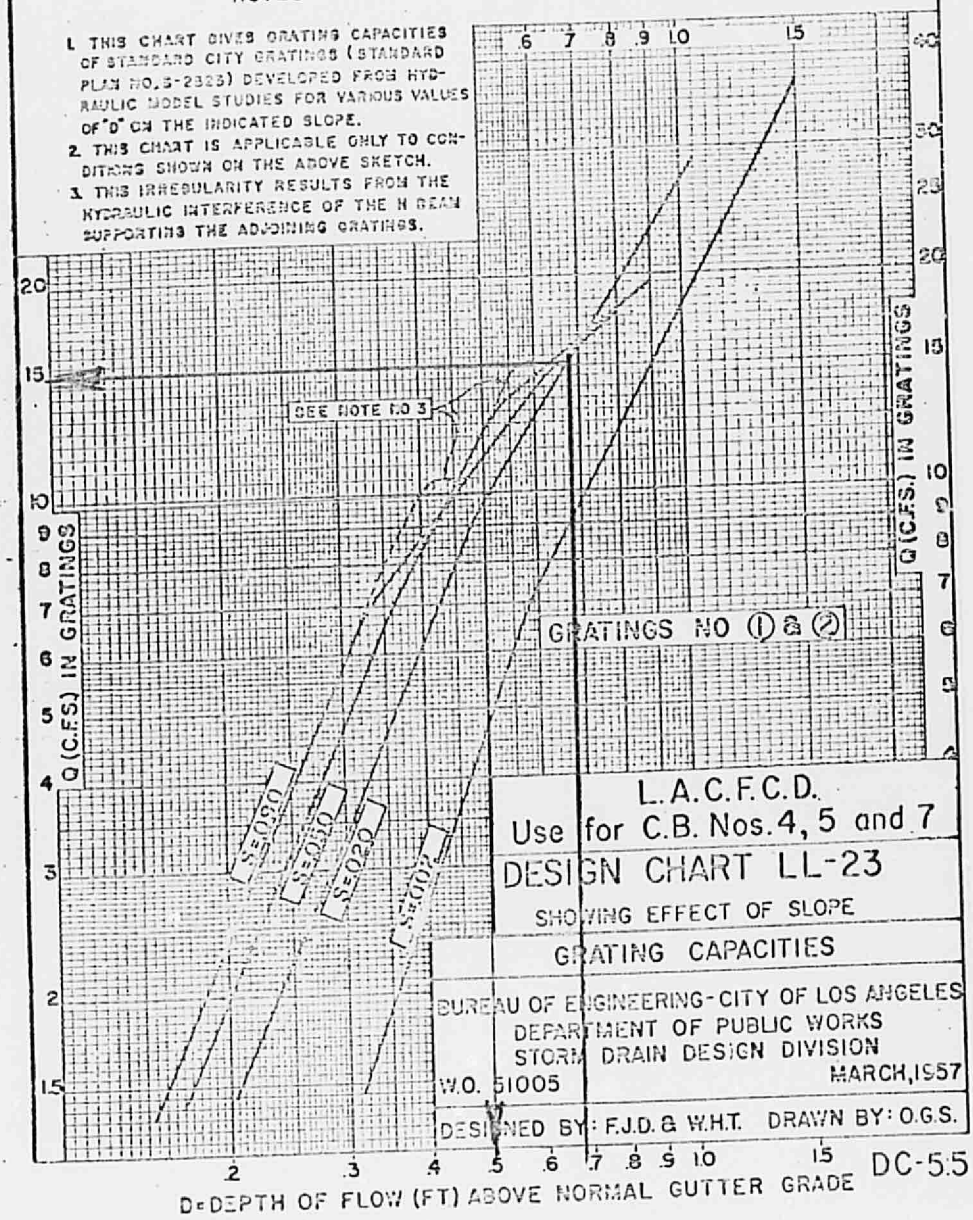
GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

NOTES

1. THIS CHART GIVES GRATING CAPACITIES OF STANDARD CITY GRATINGS (STANDARD PLAN NO. S-2323) DEVELOPED FROM HYDRAULIC MODEL STUDIES FOR VARIOUS VALUES OF "D" ON THE INDICATED SLOPE.
2. THIS CHART IS APPLICABLE ONLY TO CONDITIONS SHOWN ON THE ABOVE SKETCH.
3. THIS IRREGULARITY RESULTS FROM THE HYDRAULIC INTERFERENCE OF THE H BEAM SUPPORTING THE ADJOINING GRATINGS.



L.A.C.F.C.D.
Use for C.B. Nos. 4, 5 and 7

DESIGN CHART LL-23

SHOWING EFFECT OF SLOPE

GRATING CAPACITIES

BUREAU OF ENGINEERING-CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
STORM DRAIN DESIGN DIVISION

W.O. 51005 MARCH, 1957

DESIGNED BY: F.J.D. & W.H.T. DRAWN BY: O.G.S.

DC-5.5

$$\tfrac{1}{2} Q = \frac{1.49}{.013} r^{2/3} s^{1/2} A \qquad A = \tfrac{1}{2}(16)(.67) + 5.36$$

$$P = 1.67$$

$$r = 0.31$$

$$= \frac{1.49}{.013} (.31)^{.67} (.0025)^{.5} 5.36$$

Q/2 = 14.0 cfs

Q = 28 cfs. : ok

2. Inlet

double grating cap - 15.0 cfs at full depth
required cap - 10.75 cfs East Inlet & 14.0 West Inlet

3. Carrier Pipe: - concrete

Q = 21.5 cfs

14.0 cfs

size	slope	V	slope	V
15	--	-fps	5	11.5
18	4.5	12.5	1.8	8.0
24	0.95	6.8	.4	4.5
27	0.5	5.3	.22	3.5
30	0.3	4.3	.12	2.8

Conclusions: Ponding the water from rooftops will effectively reduce the runoff to a fugure no greater than the present total runoff. Storm water for a 100 year strom can be carried in the streets to the drainage easement, collected in a drop inlet and then diverted to the channel along I-40.

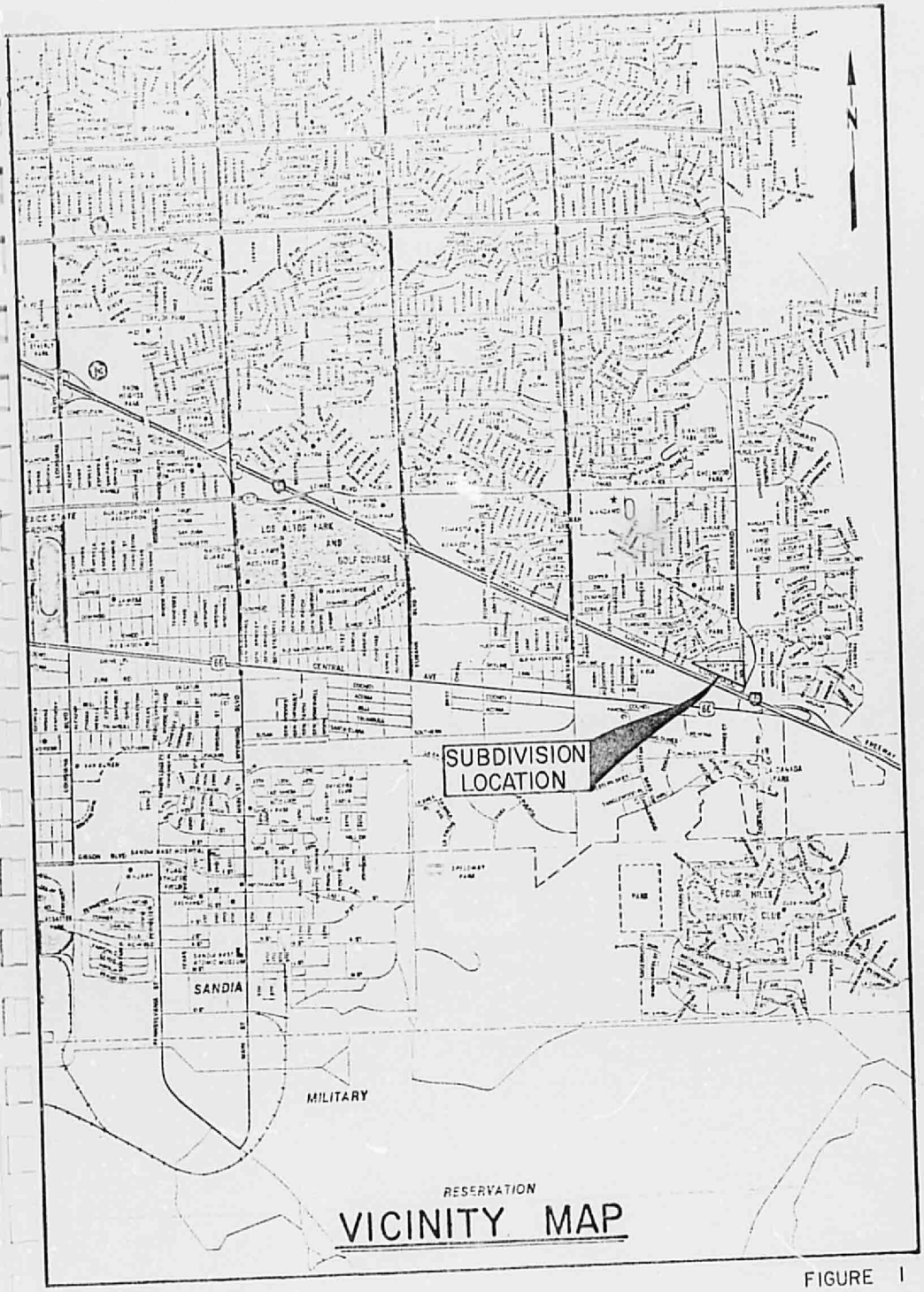
FIGURES

(1) Vicinity Map

(2) Contour Map with Drainage Areas

(3) Memo concerning recently constructed Drainage Works

(4) Subdivision Map showing Proposed drainage to I-40 Channel



VICINITY MAP

FIGURE 1

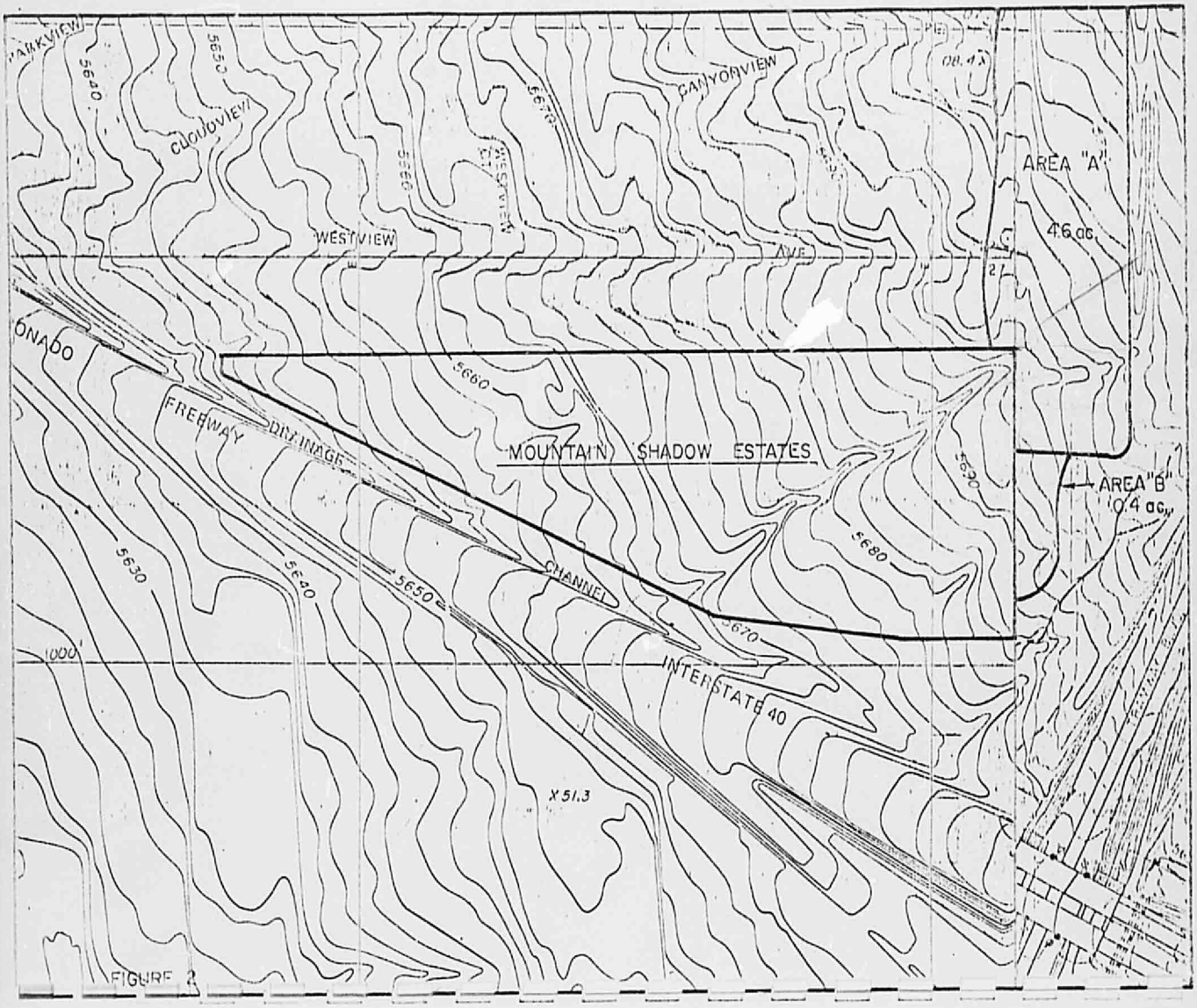

PARKVIEW
5640
5650
CLOUDVIEW
5660
WESTVIEW
5670
PANYONVIEW
WESTVIEW
AVE.
AREA "A"
4.6 ac.
ONADO
FREEWAY
DRAINAGE
5660
MOUNTAIN SHADOW ESTATES
5690
AREA "B"
0.4 ac.
5680
5630
5640
5650
CHANNEL
5670
1000'
INTERSTATE 40
X 51.3

FIGURE 2

CITY OF ALBUQUERQUE, NEW MEXICO
PUBLIC WORKS DEPARTMENT

MEMORANDUM -- September 14, 1977

TO: Mr. John R. Lucero, Planner

FROM: H. R. Orr, Jr., Acting Director of Public Works

SUBJECT: Z-77-148, V-77-33 and Z-77-143

In regard to Planning Item Z-77-143, Joy Seymour has been talking with me about the drainage that traverses that tract of land. Because of a drainage channel along the north-south alley in Block "L", Cena Poco Addition, and in a portion of Skyline Road constructed by the City, which has some impact on the drainage course through subject tract of land, it is my opinion that we should assist the property owner in filling the water course through the tract. The exact amount of assistance has not been fully decided. This work should be done after continuation of the Tramway Channel, which will decrease the surface area draining through subject tract of land.

HRO:rs
cc: Ms. Joy Seymour
Mr. Bruno Conegliano
Mr. H. G. Ervien
Mr. Q. R. Kielich
Mr. V. M. Kinnick

FIGURE 3