HYDROLOGY M23/D7 1 PLAN

M23/D7

1 Plans

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

MAYOR
David Rusk

4 Hills Village

File

C.C. BRUN

June 26, 1979

Mr. Duane F. Keating
Dickson & Dubois, P.A.
Suite 900
American Bank of Commerce Building
200 Lomas N.W.
Albuquerque, NM 87102

RECEIVED
JUN 27 1979
CITY ENGINEER

RE: LOT 29, BLOCK 1, FOUR HILLS VILLAGE

Dear Mr. Keating:

In response to your letter of June 22, 1979, attached is a copy of our letter of November 27, 1978, to Mr. Frank P. Dickson, Jr.

The November, 1978 letters suggests some alternatives the property owner might exercise.

Yours very truly,

H. R. Orr, Jr.
Deputy Director
Municipal Development

HRO/nar
Attachments
cc: Mr. Richard S. Heller, City Engineer

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

MAYOR
David Rusk

February 13, 1979

M23-D7

Mr. John Andrews
Andrews, Asbury & Robert, Inc.
401 San Pedro N.E.
Albuquerque, N.M. 87108

SUBJECT: TEST TURNKEY PROJECT WORK AUTHORIZATION #T-38
Four Hills Village, 18th Installment

Dear Mr. Andrews:

Under the provisions of the Test Turnkey Project procedures, this letter is the Work Authorization to begin field work on the project.

Sincerely,

Richard S. Heller

Richard S. Heller
City Engineer

RSH/fs

cc - H. R. Orr
Kent Nowlin Construction Co., Inc.
Ray Dawson
Water Resources
Dwayne Sheppard
Bob Kielich
LaMonte Urban
Bruno Conegliano
Bill Mueller
Jim Milton, Traffic Engineering

November 27, 1978

Mr. Frank P. Dickson, Jr.
Dickson & DuBois
Attorneys and Counselors at Law
Suite 900 American Bank of Commerce Bldg.
200 Lomas NW
Albuquerque, New Mexico 87102

Subject: LOT 29, BLOCK 1, FOUR HILLS VILLAGE (FOURTH INSTALLMENT)
(Your letters of September 11, 1978 and November 13, 1978)

Dear Mr. Dickson:

The subdivision plat for Four Hills Village (Fourth Installment) indicates a portion of Lot 29 as utility and/or drainage easement. A copy of a portion of a subdivision plat is enclosed.

Additionally, the contour map, copy of which is enclosed, seems to indicate a natural drainage course traversing the lot which may also encumber the property.

In regard to the drainage course traversing Lot 29, it might be possible through physical improvements to relocate the drainage course more nearly to the eastern portion of the lot, or the property owner could design a residence which would allow the drainage to pass safely beneath the structure.

Very truly yours,

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

HRO:rb
Attachment
cc: Mr. Malcolm deVesty, Legal Department, City, w/attach.(incl. subj.letters)
Mr. Richard S. Heller, City Engineer
Mr. George Williams, Assistant to the Mayor
Mr. Chris Porter, Administrative Assistant, Public Works

ANDREWS, ASBURY & ROBERT, INC.
Consulting Engineers
401 San Pedro, NE, Albuquerque, New Mexico 87108
(505) 265-6631

November 1, 1978

Mr. Bruno Conegliano
Asst. City Engineer, Hydrology
City of Albuquerque
P O Box 1293
Albuquerque, New Mexico 87103

Subject: Four Hills Village - 18th Installment

Dear Mr. Conegliano:

Please find enclosed three (3) copies of the Drainage Report and Analysis for Four Hills Village, 18th Installment.

Please notice on the maps in the report that I have extended the proposed diversion channel to the north as requested in our meeting held recently in Mr. Sheppard's office. This extension of the diversion channel will relieve the flows now being carried by La Tuna Place, S.E.

In addition, we are transmitting herewith the original tracing of the proposed improvements on La Tuna Place, S.E. We have added the proposed fill behind the east curb as you and Mr. Sheppard requested.

Your early review of this report and approval of the drawing for construction of the improvements on La Tuna Place will be greatly appreciated.

Very truly yours,

John A. Andrews, P.E.

JAA:ys

Encl: 3

DRAINAGE REPORT & ANALYSIS
FOR
FOUR HILLS VILLAGE
18th INSTALLMENT

PAUL'S HOMES, INC.
ALBUQUERQUE, NEW MEXICO

DRAINAGE REPORT & ANALYSIS
FOR
FOUR HILLS VILLAGE
18TH INSTALLMENT

NOVEMBER 1, 1978

ANDREWS, ASBURY & ROBERT, INC.
401 SAN PEDRO, N.E.
ALBUQUERQUE, NEW MEXICO

DRAINAGE REPORT AND ANALYSIS
FOR
FOUR HILLS VILLAGE
18th INSTALLMENT

TABLE OF CONTENTS

1. General Description
2. Location Map, Map No. 1
3. Offsite Drainage, Map No. 2
4. Onsite Drainage, Map No. 3 (See Special Pocket)
5. Drainage Analysis
(Sheet 1 through 8)

DRAINAGE REPORT & ANALYSIS

GENERAL DESCRIPTION

Four Hills Village - 18th Installment is located at the North end of La Tuna Place, S.E. and consists of Four (4) Lots (See Map no. 1).

Included herein is an analysis of the drainage on La Tuna Place which serves the 18th Installment and also of the proposed diversion channel to be constructed at the time the Four Hills Village 19th Installment is to be developed. Construction work on the 19th Installment is proposed to commence during the month of November, 1978 and to be completed prior to July 1, 1979.

As you will notice from the maps included herein, the proposed diversion channel will divert to the south several acres now draining onto La Tuna Place, S.E.

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
401 San Pedro, NE., Albuquerque, N.M. 87108
Telephone (505) 265-6631

DRAINAGE ANALYSIS

CRITERIA

Design Storm - 100year frequency

REFERENCE MATERIAL

1. Albuquerque Area (1961) Intensity-Duration-Frequency Curves
2. Time of Concentration Nomograph, P.Z. Kirpich

DESIGN PARAMETERS

Peak runoff rate - Rational Formula

$Q = CIA.$

Runoff Coefficient

$C = 0.50.$

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FOUR HILLS VILLAGE
18TH INSTALLMENT

DRAINAGE ANALYSIS

Drainage Areas D-1 & D-2 flow to La Tuna Place, SE. (See MAP NO. 3)

Drainage Area D-1

Area = 6.8 Acres

T_c = Time of Concentration - less than 10 min.

Use I = 5.4

C = Runoff Factor = 0.50

$Q = CIA = (0.50)(5.4)(6.8) =$ 18.4 CFS

DRAINAGE AREA D-1 & D-2

Area - D-1 = 6.8 Ac.
D-2 = 18.5 Ac.
Total = 25.3 Ac.

T_c = < 10 min., Use I = 5.4

C = 0.50

$Q = (0.50)(5.4)(25.3) =$ 68.3 CFS

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DRAINAGE ANALYSIS

FOUR HILLS - DIVERSION CHANNEL

See MAP NO. 3 for designation & Location of Drainage Areas.

Drainage Area (DA) D-3

Area = 5.0 Acres

T_c = Less than 10 min - Use I = 5.4

C = 0.50

Q = CIA = (0.50)(5.4)(5.0) = 13.5 CFS

DA - D-4

Area = 5.5 Ac.

T_c < 10 min - Use I = 5.4

Q = (0.50)(5.4)(5.5) = 14.8 CFS

DA - D-5

Area = 1.9 Ac., I = 5.4

Q = (0.50)(5.4)(1.9) = 5.1 CFS

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DA - D-6

Area = 2.7 Acres, I = 5.4

Q = (0.50)(5.4)(2.7) = 7.3 CFS

DA - D-7

Area = 4.4 Acres, I = 5.4

Q = (0.50)(5.4)(4.4) = 11.9 CFS

DA - D-8

Area = 52.3 Acres

Elev. Diff. = 6330 - 5968 = 382'

Length = 4000'

Tc = 12 min. I = 5.0

Q = (0.50)(5.0)(52.3) = 130.8 CFS

DA - C-1

Area = 14.7 Acres, I = 5.4

Q = (0.50)(5.4)(14.7) = 39.7 CFS

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DA-C-2

Area = 68.3 Acres

Elev. Diff. = Reach 1 - 6560-6400 = 160'; Lg. 500'

Reach 2 - 6400-5966 = 434'; Lg. 4700'

T_c = Reach 1 = 3 min.

Reach 2 = 12 min.

Total = 15 min. I = 4.6

Q = (0.50)(4.6)(68.3) = 157.1 CFS

DA-B-1

Area = 7.0 Acres., I = 5.4

Q = (0.50)(5.4)(7.0) = 18.9 CFS

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DIVERSION CHANNEL - FLOW ANALYSIS

Flows from Drainage Areas D-3 through D-8, C-1 & C-2 and B-1 will be intercepted by the FOUR HILLS DIVERSION CHANNEL.

DA - D-3 - See Sheet 3 of 8

$Q =$ 18.4 CFS

DA - D-3 & D-4

Area = 5.0 + 5.5 = 10.5 Acres,

$I = 5.4$

$Q = (0.50)(5.4)(10.5) =$ 28.4 CFS

DA - D-3, D-4 & D-5

Area = 10.5 + 1.9 = 12.4 Acres

$I = 5.4$

$Q = (0.50)(5.4)(12.4) =$ 33.5 CFS

DA - D-3 thru D-6

Area = 12.4 + 2.7 = 15.1 Acres

$T_c < 10$ min.. Use $I = 5.4$

$Q = (0.50)(5.4)(15.1) =$ 40.8 CFS

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DA - D-3 Thru D-7

Area = 15.1 + 4.4 = 19.5 Acres

I = 5.4

Q = (0.50)(5.4)(19.5) = 52.6 CFS

DA - D-3 Thru D-8

Area = 19.5 + 52.3 = 71.8 Acres

T_c - Same as for Drainage Area D-8
= 12 min.

I = 5.0

Q = (0.50)(5.0)(71.8) = 179.5 CFS

DA - D-3 Thru D-8 & C-1

Area = 71.8 + 14.7 = 86.5 Acres

T_c = Same as above - 12 min. + channel flow time.

Channel flow time = 900' @ 5 fps = 3 min.

T_c = 12 min + 3 min. = 15 min.

I = 4.6

Q = (0.5)(4.6)(86.5) = 199.0 CFS

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DA - D-3 thru D-8 & C-1 & C-2.

Area = 86.5 + 68.3 = 154.8 Acres

T_c = Same as above which is equal to T_c for Drainage Area C-2.

= 15 min.

I = 4.6

Q = (0.50)(4.6)(154.8) = 356.0 CFS

DA - D-3 thru D-8, C-1 & C-2 & B-1

Area = 154.8 + 7.0 = 161.8 Acres

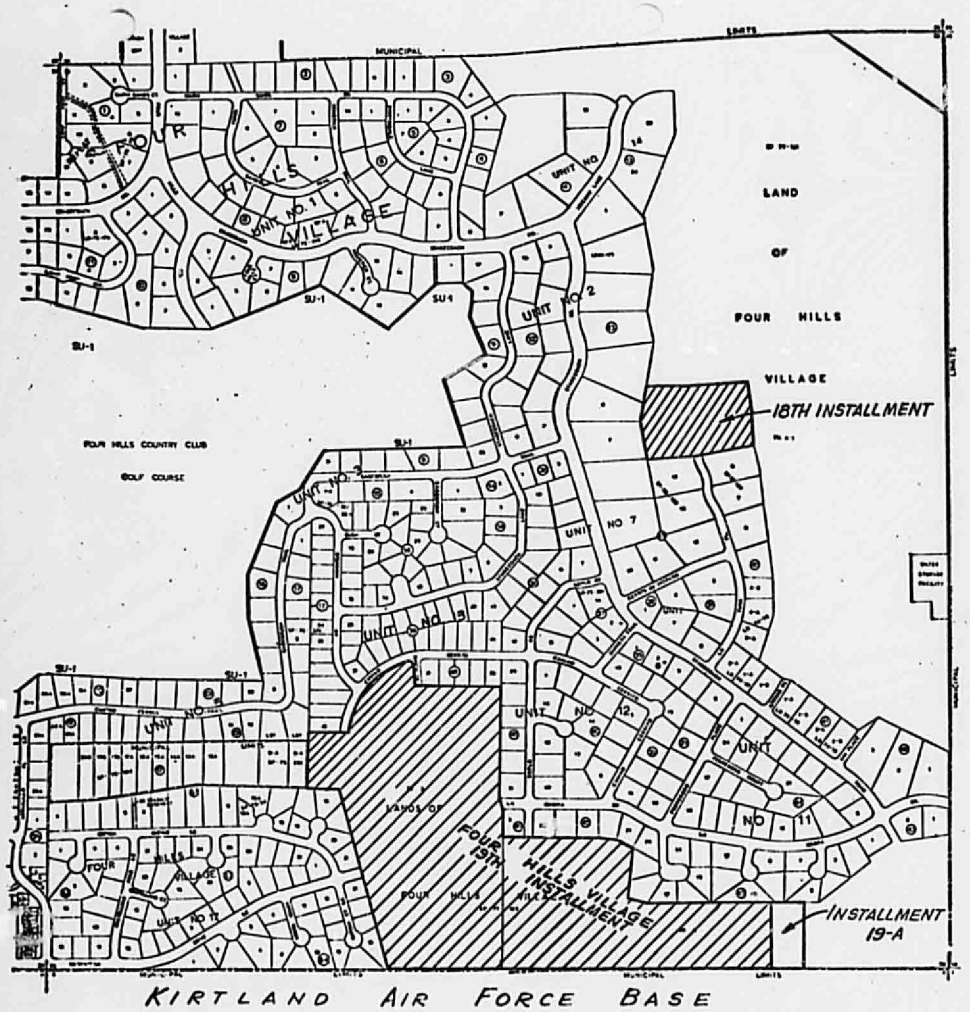
T_c = Same as above - 15 min. + channel flow time.

Channel flow time = 700' @ 6 fps = 2 min.

T_c = 15 min + 2 min = 17 min.

I = 4.5

Q = (0.50)(4.5)(161.8) = 364.0 CFS

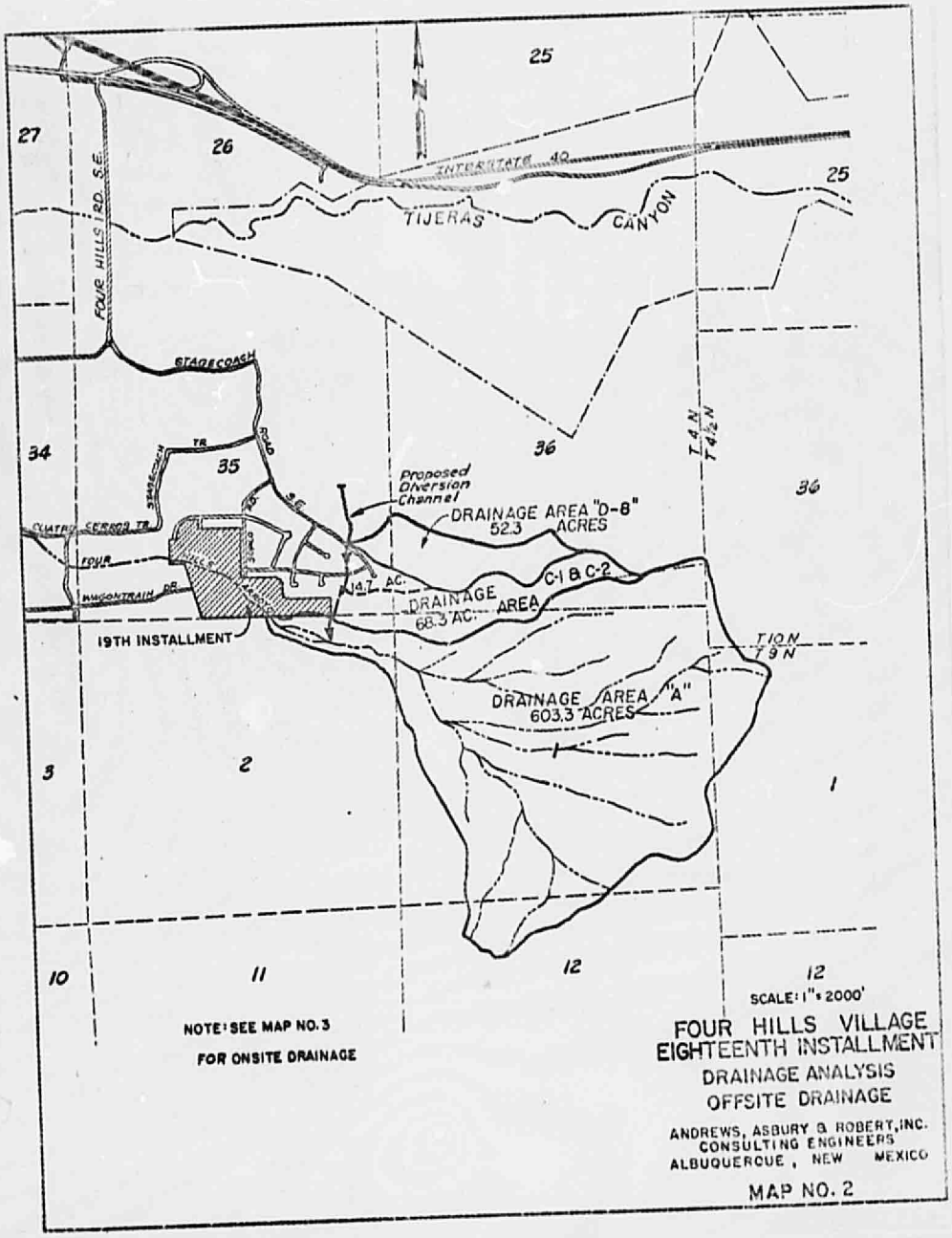


FOUR HILLS VILLAGE
18TH INSTALLMENT
DRAINAGE ANALYSIS

LOCATION MAP

M-23-Z

MAP No. 1


25
27
26
INTERSTATE 40
25
TIJERAS
CANYON
FOUR HILLS RD. S.E.
STAGECOACH
34
35
36
T 4 N
T 4½ N
36
Proposed Diversion Channel
DRAINAGE AREA "D-8"
52.3 ACRES
C-1 & C-2
DRAINAGE AREA
68.3 AC.
14.7 AC.
19TH INSTALLMENT
T 10 N
T 9 N
DRAINAGE AREA "A"
603.3 ACRES
3
2
1
10
11
12
12
SCALE: 1" = 2000'
NOTE: SEE MAP NO. 3
FOR ONSITE DRAINAGE
FOUR HILLS VILLAGE
EIGHTEENTH INSTALLMENT
DRAINAGE ANALYSIS
OFFSITE DRAINAGE
ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE, NEW MEXICO
MAP NO. 2