HYDROLOGY E20/D10 FIVE PLANS

E20/D10

5 Plans

VILLAGE GREENS

UNIT 1

DRAINAGE MANAGEMENT PLAN

PREPARED FOR:

AFFILIATED MORTGAGE AND DEVELOPMENT COMPANY

BY:

COMMUNITY SCIENCES CORPORATION

KENT M. WHITMAN
STATE OF NEW MEXICO
NO. 6170
REGISTERED PROFESSIONAL ENGINEER

Kent M. Whitman, P.E.
April 1979

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000

SURVEYING
ENGINEERING
LAND PLANNING

RECEIVED
APR 1 9 1979
CITY ENGINEERS

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A. PURPOSE AND SCOPE

Affiliated Mortgage and Development Company (AMDEC) is currently planning development of Village Greens, Unit 1, a subdivision of approximately 15 acres lying adjacent and South of the Arroyo del Pino. The purpose of this report is to present a drainage management plan for the proposed subdivision area which is acceptable to the City of Albuquerque and to the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA).

B. SITE LOCATION AND TOPOGRAPHY

Village Greens, Unit 1, is located in Northeast Albuquerque. Access to the subdivision is provided from Academy Road N.E., approximately 400 feet Easterly of the intersection with Denali Road N.E. The subdivision lies Northerly of Academy Road N.E. and Southerly of the Tanoan Golf Course. (See Plate 4)

The land slopes from East to West at an average rate of 4% - 5%. Soils consist mostly of alluvial sands and silts, and decomposed granite is the major soil constituent.

C. DESIGN CRITERIA

In accordance with AMAFCA and City of Albuquerque requirements all hydrological analysis is based on 100 year frequency accumulated rainfall figures as presented in NOAA Atlas #2. Rate calculations are based on the one-hour rainfall figure since this results in greater peak rates of runoff than the six-hour figure in the hydrograph procedure used.

Runoff coefficients were estimated by calculation of composite values as shown on the Typical Plot Plan - Plate 1.

The drainage plan presented in this report has been developed assuming compliance with the 1972 AMAFCA Resolution. That resolution has been interpreted to say that the rate and volume of runoff allowed to leave the site after development shall be no greater than the rate and volume running off prior to development. Refer to Section G, Arroyo del Pino Flood Plain Analysis, for discussion of 1972 AMAFCA Resolution as applicable to the Arroyo del Pino.

D. COMPUTATION PROCEDURES

Based on the anticipated land use (See Plate 1) a C composite of 0.77 was calculated and assigned to each of the drainage areas for which runoff hydrographs were developed. The hydrographs were

developed by use of the Bureau of Reclamation Triangular Hydrograph method. This method simulates the runoff characteristics of a watershed by development of a series of short duration triangular hydrographs at short intervals relative to storm duration - finally summing the individual hydrographs into one "curve" for the entire duration of the storm. The equivalent to the runoff coefficient in the BOR Procedure is a parameter called the Curve Number (Cn). Based on percent of rainfall actually running off for a given Cn value, an equation was developed to convert C composite into Cn. This equation is written:

$$Cn = 5.42 + InC / .056$$

Times of concentration were estimated based on estimated overland, street and conduit flow velocities as follows:

Overland	3.7 fps @ 5.5% slope
Swale-Grass	2.5 fps @ 3.0% slope
Streets	3.5 fps @ 0.5% slope
	5.0 fps @ 1.5% slope
	6.0 fps @ 2.0% slope
	8.0 fps @ 3.0% slope

Examination of the hydraulics of the flow rates generated with this input showed a reasonable correlation to the estimated travel times and the slight deviations are not expected to have any significant effect upon the analysis as presented.

Table 1, Summary of Hydrological Parameters and Peak Flow Rates presents the input data and peak flow rates for the areas analyzed as shown on Plate 2, Drainage Master Plan, and Plate 3, Off-site Drainage Area.

Street, pipe and channel (swale) capacities were calculated based on the Manning Equation for Uniform Flow. Drop inlets were sized by means of the Orifice Equation with a net/gross grate area ratio of 80% as provided by Irving Bridge Deck Type Grates for submerged condition and a ratio of 65% for non-submerged conditon.

E. OFF-SITE DRAINAGE

Areas A, B, and C drain toward and onto the site (See Plate 3, Off-site Drainage Areas).

Area A will ultimately drain to the main entrance road running North-South along the Easterly boundary of the subdivision via an internal system of subdivision swales and streets. As a temporary alternate, a 3' high diversion berm will be constructed to accomplish the same end. The drainage onto the road will then be directed Northerly into the Pino.

Area C also drains to the main entrance road. However, Area C drainage is directed to the South onto Academy Road N.E. where it combines with Area B (Area tributary to Point 12 Academy Hills Units 4-6 Drainage Management Plan) drainage. The combined Area B and C drainage is collected into drop inlets located near Denali Road and conveyed to the Arroyo del Pino via a 48" diameter storm sewer.

The outlet of the 48" diameter storm sewer will be designed such that the spring line of the conduit conforms with the peak flow water surface elevation in the Arroyo del Pino. Further the direction of flow at the outlet will conform with the direction of flow in the Arroyo del Pino. Wire enclosed rip-rap will be provided at the outlet as necessary to protect the embankment and adjacent area from erosion.

Approximately 500 feet Westerly of the Academy Road N.E. intersection with Concordia Road N.E., drop inlets collect the storm water from the eastbound lanes of Academy Road N.E. The collected storm water will then be conveyed through an outfall draining to an existing small arroyo to the North which drains to the Arroyo del Pino. The analysis of the watershed to these inlets is included in the Academy Hills Units 4-6 Drainage Management Plan previously referenced.

The total flow to the Academy Road N.E. inlets has been calculated at 178 cfs with 125 cfs collected at the inlets near Denali Road (Point B) and 53 cfs collected at the inlets approximately 500 feet Westerly of Concordia Road N.E.

As shown on Plate 3, Off-site Drainage Area, regrading of the area Easterly of the main entrance road (for approximately 650' ±) is required to contain flood waters within the Arroyo del Pino to the arroyo. The topography is such that without the regrading flood waters would flow from the Arroyo del Pino onto Off-site Drainage Area A.

The diversion of off-site drainage to the Arroyo del Pino complies with the Arroyo del Pino Flood Plain Analysis by Leonard Rice and Associates and Community Sciences Corporation.

F. ON-SITE DRAINAGE

Plate 2, Drainage Master Plan, Village Greens, Unit 1, illustrates the proposed drainage patterns for on-site runoff.

The proposed development area was subdivided into 12 smaller areas for analysis purposes. On-site Areas 2 and 7 inclusive, drain via the proposed street system to a common point where the drainage is collected into drop inlets, which combine with the storm water from Areas B and C and are then conveyed through the 48" diameter outfall to the Arroyo del Pino.

Storm water from Areas 8 through 13 inclusive are collected via the street system (or via a swale discharging to the street system) into a shallow temporary detention pond located adjacent to the Westerly boundary of the subdivision. Flow from the detention pond is overland to the Arroyo del Pino. The rear yard portions of Lots 1 through 27 inclusive are designated Area D and drain directly to the Arroyo del Pino.

The diversion of on-site drainage to the Arroyo del Pino complies with the Arroyo del Pino Flood Analysis by Leonard Rice and Associates and Community Sciences Corporation.

Although it is anticipated that the entire subdivision will be developed similarly to what is shown on Plate 1, Typical Plot Plan, the possibility exists that someone may wish to devise an alternate site plan. The owners therefore agree to put the requirement into their sales contract that all townhouse developers must submit their plot plans to City Engineering for approval.

G. ARROYO DEL PINO FLOOD PLAIN ANALYSIS

Shown on Plate 1, Drainage Master Plan are x-sections 31, 31.1, 31.2, 32, 33, and 34 of the Arroyo del Pino Flood Plain Analysis by Leonard Rice and Associates and Community Sciences Corporation. For each x-section is given the energy grade line elevation or water surface elevation plus one foot, whichever is greater for peak flow at the section and the corresponding flow depth and velocity. It may be seen by inspection that the proposed site grading plan and proposed drainage improvements conform with the flood analysis such that the subdivision area is fully protected.

The proposed site grading is preliminary only. Its' intent is to show the general drainage pattern for the site. The final grading plan will include revisions as necessary to conform to the Drainage Management Plan as presented herein.

The Drainage Master Plan for Village Greens, Unit 1, provides for directing total runoff to the Arroyo del Pino. This plan complies with the intent of the 1972 AMAFCA Resolution as determined by the findings of the Arroyo del Pino Flood Plain Analysis. The Arroyo del Pino Flood Plain Analysis reached the conclusion: existing flood control improvements along the arroyo are such that total

runoff after development may be directed to the arroyo from lands within the study areas, without increasing the rate and volume running off prior to development.

APPENDIX A

Calculations

1. Street Capacity @ minimum slope of .50%

Width	28' F-F
Crown	0.28'
S	.0050
n	.015
d	0.33' (4" curb and gutter height)

Q = 12.15 cfs @ v = 2.28 fps

2. Street Capacity @ minimum slope of 2.5%

Width	28' F-F
Crown	0.28'
S	.025
n	.015
d	.33' (4" curb and gutter height)

Q = 28.10 cfs @ v = 5.16 fps

3. Street Capacity @ minimum slope of 1.7%

Width	28' F-F
Crown	.28'
S	.017
n	.015
d	0.33'

Q = 23.42 cfs @ v + 4.31 fps

Conclusion (from 1, 2, 3 above):

a) Minimum street slope opposite Lots 11-14 inclusive shall be 2.5%

b) Minimum street slope opposite Lots 25-27 inclusive shall be 1.7%

c) Minimum street slope for all streets other than a and b above shall be .50%

4. Storm Drain Diameter and Slope

NOTE: All pipe sizes and slopes from nomograph for computing required size of circular drain, flowing full, n = .013

a) Q = 53.5 cfs (Academy Road outfall and Academy Road connection to existing inlet)

Diameter = 36", S = .0083 ft/ft, v = 8.6 fps

b) Q = 125.18 cfs (Academy Road to subdivision inlet)

Diameter = 48", S = .0080 ft/ft, v = 10.3 fps

c) Q = 145.79 cfs (Subdivision inlet to outfall)

Diameter = 48", S = .010 ft/ft, v = 11.5 fps

5. Swale (v-ditch) Capacity and Slope

Q required = 7.68 cfs
assume v-ditch with zero bottom
Width & 4:1 sideslopes
n = .03
ss = 4:1
Bottom Width = 0'
S = .02
d = 0.73'
v = 3.56 fps

Conclusion: assumed v-ditch o.k.
(d = 0.73'

6. Drop Inlets

a) Inlet Capacity Single Type C (Academy Road)

Co = 0.65
Area (net grate) = .65 x 6.37 = 4.14 SF
h (grate) = 1'
clog factor = 0.67
Q grate = Co A (net) $\sqrt{2gh}$ x C.F. = 14.5 cfs
A gutter inlet = 0.5 x 3 = 1.5 S.F.
h gutter inlet = 1.20 - .25 = 0.95
Q gutter inlet = CoA $\sqrt{2gh}$ = 7.6 cfs
Q total = 14.5 + 7.6 = 22.1 cfs

b) Inlets 500' Westerly of Concordia Road
$Q = 27$ cfs
$\therefore$ use double type C inlet

c) Inlet @ Denali Road
$Q = 71.68$ cfs $(125.18 - 53.5 = 71.68)$
$\therefore$ use quadruple type C inlet

d) Inlet Capacity Single Type C (subdivision)
$Co = .65$
Area (net grate) $= .80 \times 6.37 = 5.10$ S.F.
h (grate) $= 0.46'$
clog factor $= 0.85$
Q grate $= Co\ A$ (net) $\sqrt{2gh} \times$ C.F. $= 15.34$ cfs
A gutter inlet $= 0.5 \times 3 = 1.5$ S.F.
h gutter inlet $= 0.56$
Q gutter inlet $= Co\ A \sqrt{2gh} = 5.86$ cfs

Q total $= 15.34 + 5.86 = 21.2$ cfs

e) Inlet Vicinity Lots 14 and 15
$Q = 28.10$ cfs
$\therefore$ use double type C inlet

TABLE 1

SUMMARY OF HYDROLOGICAL PARAMETERS

AND

PEAK FLOW RATES

AREA/POINT DESIGNATION	AREA (SQ.MI.)	INDIVIDUAL C	AREAS CONTRIBUTING	GROSS AREA (ACRES)	COMPOSITE C	TIME OF CONCENTRATION (HR.)	Q (PEAK) (CFS)
A (OFFSITE)	.0065	0.77	A	.0065	0.77	0.03	20.53
C (OFFSITE)	.0037	0.77	C	.0037	0.77	0.03	11.68
2	.0009	0.77	2	.0009	0.77	0.01	3.10
3	.0013	0.77	3	.0013	0.77	0.05	3.8
4	.0010	0.77	4	.0010	0.77	0.01	3.4
5	.0006	0.77	5	.0006	0.77	0.02	1.9
6	.0020	0.77	6	.0020	0.77	0.02	6.5
7 (WITHOUT B)	.0033	0.77	2, 3, 4, 5, 6, 7	.0091	0.77	0.037	28.10
8	.0009	0.77	8	.0009	0.77	0.03	2.8
9	.0007	0.77	9	.0007	0.77	0.01	2.4
10	.0003	0.77	10	.0003	0.77	0.01	1.0
11	.0018	0.77	11	.0018	0.77	0.02	5.8
12	.0033	0.77	12	.0033	0.77	0.14	7.68
13	.0028	0.77	8, 9, 10, 11, 12, 13	.0099	0.77	0.14	23.42
#B (OFFSITE WITHOUT C)	.056	0.55	B	.060	0.55	<10 MIN	---
7 (WITH B & C)	.0030	0.77	2, 3, 4, 5, 6, 7, B, C	.069	0.59	0.099	145.79
B (OFFSITE WITH C)	.0597	0.55	B & C	.060	0.56	0.087	125.18

# INDICATES DATA OBTAINED FROM ACADEMY HILLS UNITS 4-6 DRAINAGE MANAGEMENT PLAN, OCTOBER 1977, COMMUNITY SCIENCES CORPORATION.

C COMPOSITE

ITEM	AREA	C
PATIO	100 S.F.	.95
BLDG.	2000 S.F.	.95
DRIVE	500 S.F.	.95
STREET PVMT & S/WALK	672 S.F.	.95
LAWN	670 S.F.	.25
S.W. LAND-SCAPING	2010 S.F.	.65
	5952 S.F.	

C COMPOSITE =

$$\frac{3272 \times .95 + 670 \times .25 + 2010 \times .65}{5952}$$

$$= 0.77$$

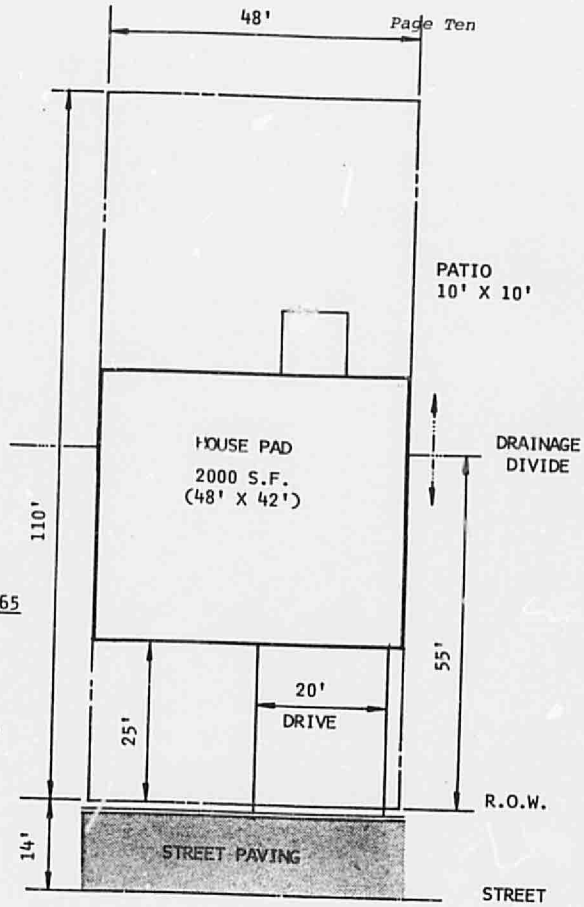

PLATE 1
TYPICAL PLOT PLAN
TOWNHOUSE UNIT

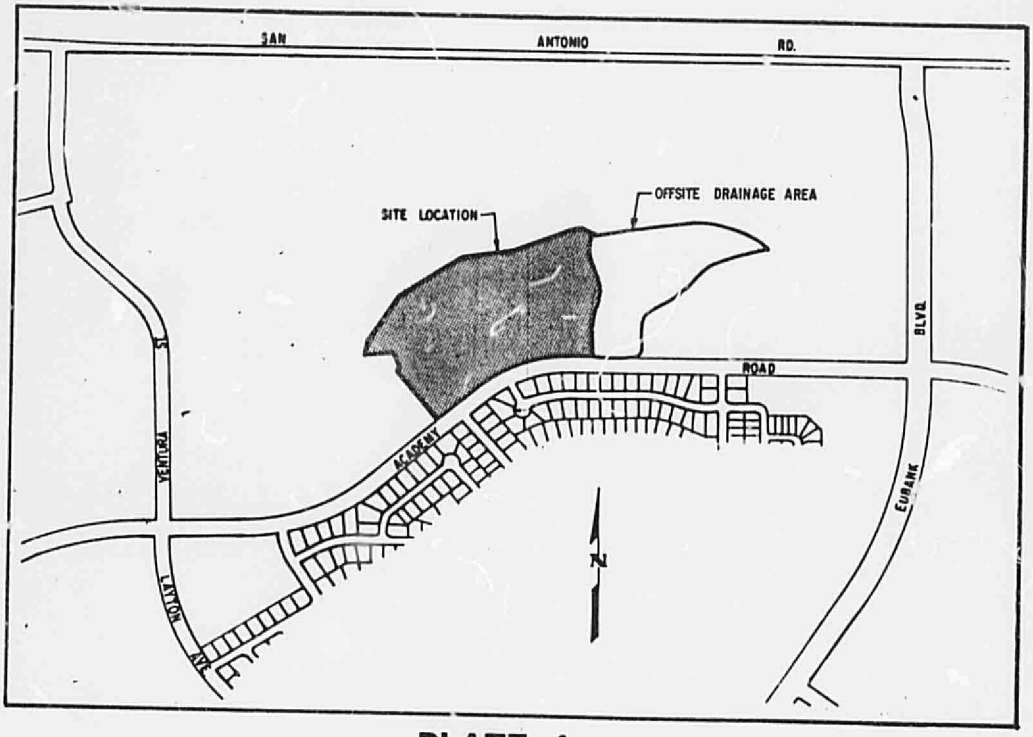

PLATE 4
VICINITY MAP
VILLAGE GREENS UNIT 1

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

April 28, 1982

E-20-D10

Affiliated Mortgage and Development Co.
Allan L. Whitesel, P.E.
P.O. Box 25000
Albuquerque, New Mexico 87125

Dear Mr. Whitesel:

With respect to your letter dated April 22, 1982 to Mr. Richard S. Heller, City Engineer, regarding the 6" PVC drain connection into the existing 48" RCP storm sewer, this scheme is acceptable. Please submit a Special Order 19 for the proposed connection to Mr. Bob Kielich, Assistant City Engineer/Design for his review and approval.

Sincerely,

Fred J. Aguirre

Fred J. Aguirre, PE
Civil Engineer/Hydrology

FJA/el

cc: Drainage File
Reading File

affiliated mortgage & development company amdec

a wholly owned subsidiary of Albuquerque Federal Savings and Loan Association

6400 uptown blvd., n.e.
albuquerque, new mexico

mailing address
p. o. box 25000
albuquerque, new mexico 87125

AM - 1071

April 22, 19 2

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APR 26 1982
CITY ENGINEER

E-20-D10

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

RE: 6" PVC DRAIN TIE-IN INTO EXISTING 48" RCP STORM SEWER IN TRACT 82 OF VILLAGE GREENS, UNIT I

Dear Dick:

Enclosed please find two sketches of my proposal to tie a 6" PVC yard drain (for lot 46 and tract 82 only) into the City's existing 48" RCP storm sewer within tract 82.

As you know, there has been some significant settlement in this area due to elevated subsurface moisture, and I am attempting to eliminate all sources of water in this area.

Lot 46 was designed to pond in the back, but the settlement problem requires that this not be done. The best solution available is to tie a yard drain (6" PVC or other material if you require) into the top of the existing storm sewer.

Please consider this request and advise me as soon as possible so that I might move forward on my plan to reduce the chance of further settlement occurring in this area.

If you need more information or if I can answer any questions, please feel free to contact me immediately at 883-3501.

Thank you.

Sincerely,

AFFILIATED MORTGAGE AND DEVELOPMENT COMPANY

Allan L. Whitesel

Allan L. Whitesel, P.E.
Chief Engineer

pjn

RSH EMA ADM
HRO SUR
CDS SEC
DES FILE
INSP RETURN
HYDRO

S.O. #9? YES
Please handle

DUE 5/3

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE November 13, 1981

REF. NO. E 20-D10

TO: Barbara Stephenson, Assistant City Attorney

FROM: Fred J. Aguirre, Civil Engineer/Hydrology FJA

SUBJECT: LOTS 66, 67, 68 VILLAGE GREENS AT TANOAN, UNIT ONE

Attached are two letters, one of which originated from this office to complainant with a xerox copy to AMADEC, the second letter was AMADEC'S reply to this letter.

Question is, did I place the City in a libelous position regarding my recommendations to Mr. Chambers, since he may be taking civil action against AMADEC in light of my letter.

FJA/el

cc: Drainage File
Reading File

Enclosure

affiliated mortgage & development company amdec

a wholly owned subsidiary of Albuquerque Federal Savings and Loan Association

6400 uptown blvd., n.e.
albuquerque, new mexico

mailing address
p. o. box 25000
albuquerque, new mexico 87125

AM 942

October 27, 1981

CH ____ ADM ____
PRO ____ SUR ____
CDS ____ COMM ____
DES ____ SEC ____
INSP ____ FILE ____
HYDRO ____ RETURN ____

RECEIVED
OCT 30 1981
CITY ENGINEER

Fred Aguirre, P.E.
Civil Engineer Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87109

Subject: Your October 19, 1981 letter
Re: Lots 66, 67, 68 Village Greens at Tanoan, Unit I

Dear Fred:

To reiterate our conversation of October 27, 1981 on this subject, once AMDeC (the Developer) sells a lot, we no longer have the right to enter upon that lot for grading or any other purpose.

Typically after the lot is graded and sold the builder builds any required retaining wall as part of the home construction. At this time (after the lot is sold) the developer no longer has any access to the lot and has no legal mechanism to control the builders final grading. This is much the same situation you (the city) are in.

I hope you will be able to discuss this situation with legal and City engineering in light of your October 19, 1981 letter, and revise your letter so that it accurately reflects the actual circumstances as they relate to AMDeC in this situation.

If I can provide additional information or if you like to set up a meeting on this subject, please contact me at 883-3501.

Your cooperation and assistance is greatly appreciated in this regard.

Sincerely,

AFFILIATED MORTGAGE AND DEVELOPMENT COMPANY

Allan L. Whitesel

Allan L. Whitesel, P.E.
Chief Engineer

CC: Chuck Easterly
John Myers

OCT 27 1981

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 19, 1981

Mr. Jack Chambers
9759 Colonial Circle N.E.
Albuquerque, New Mexico

RE: LOTS 66, 67, 68, VILLAGE GREENS AT TANOAN, UNIT ONE

Dear Mr. Chambers:

A recent survey (attached) by the City's Survey crew of the referenced lots clearly indicates a deviation from the approved grading plan on file with the City Engineer's Office. The ground elevation along the retaining wall deviates as much as a foot and a half (1.5 ft.) from the approved plan. Since the developer is obligated to comply with the approved development plan, I suggest you contact AMDEC's Office to resolve this situation.

Regarding the ground settlement you are experiencing, I would recommend you retain a soils engineer to determine the subsoil densities of your site and have him make recommendations on how to correct it. Also, I recommend that temporary measures be taken (agreeable to AMDeC) to prevent any further storm runoff emanating from Lots 68 and 67 from entering your site. These flows could aggrevate the settlement problem you are experiencing.

I hope the information submitted herewith will help you resolve this problem. If I can be of any further service, please feel free to call me.

Sincerely,

Fred Aguirre

Fred Aguirre, P.E.
Civil Engineer/Hydrology

FA:gc
8796A
cc f/Drainage
f/Reading
AMDeC, P.O. Box 25000; 87125
Tom Howe, Casa Allegre Realty, 3939 San Pedro N.E.; 87110
Ronald Chapman, C & N Construction, 1105 Monte Largo N.E.; 87123

RICHARD E. LEONARD
EXECUTIVE ENGINEER

S. H. SWINBURNE, CHAIRMAN
WILLIAM V. HEREFORD, VICE-CHAIRMAN
FRANCES MCCOY, SECRETARY-TREASURER
VERNON DOAK, DIRECTOR
KLESTON LAWS, DIRECTOR

Albuquerque Metropolitan Arroyo Flood Control Authority
2600 PROSPECT AVE. N.E.
P. O. BOX 25051 - ALBUQUERQUE, N. M. 87125
TELEPHONE 344-3516

Copy
Village Green I
file

E20-D10

Oct 1 RCL
~~September 24~~, 1980

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OCT 02 1980
CITY ENGINEER

Mr. Allan L. Whitesel, P.E.
Chief Engineer
Affiliated Mortgage & Development Company
P.O. Box 25000
Albuquerque, NM 87125

Dear Al:

Ref: Your August 25, 1980, letter Subject: Revetment Wall Construction in the Pino Arroyo along Village Greens - Unit I at Tanoan.

I regret that I cannot approve deleting the revetment walls. Both you and I have a long term obligation to protect homeowners neighboring the arroyo. Without the walls, all of us would be depending on good turf maintenance into the indefinite future. It's a risk we need not take.

Sorry I can't give you a more favorable reply.

Sincerely,

Rich Leonard

Richard E. Leonard
Executive Engineer

ic
cc: B. Conegliano
K. Whitman

P.S. Project map enclosed.
RCL

affiliated mortgage & development company amdec

a wholly owned subsidiary of Albuquerque Federal Savings and Loan Association

6400 uptown blvd., n.e.
albuquerque, new mexico

mailing address
p. o. box 25000
albuquerque, new mexico 87125

RSL

Asst. Engr.
Engineer
Admin. Asst.
Rel. Est. Off.
Secretary
Foreman
Return to
File #

AM - 558

August 25, 1980

Mr. Richard Leonard
Executitve Engineer
AMAFCA
P. O. Box 25851
Albuquerque, New Mexico 87125

Subject: Revetment Wall Construction in the Pino Arroyo along Village Greens - Unit I at Tanoan.

Dear Rich:

After the recent large storm water runoff in the Pino Arroyo by subject subdivision, I requested Community Sciences Corporation to provide a detailed study to determine the real need for revetment wall construction in this area. My reason for doing this was that after the heavy runoff the high-water mark for this area never was closer than approximately 20' to the wall along Village Greens. I felt a detailed analysis of this specific area might indicate that the revetments were not required.

Community Sciences proceeded to take several field cross sections and reanalyzed this reach of the pino Arroyo.

Attached is a copy of Community Sciences letter report stating their study indicated these revetment walls may be eliminated. As Kent notes in his letter, regrading activities along the common area of Village Greens has been sufficient to move the runoff flow line far enough away from the walls to allow their (the walls) elimination.

The criteria Kent used to base his recommended action for revetment wall elimination was developed in the CSU study that was done for this area. As AMDeC has already submitted a set of plans for subject revetment walls to your office and received your approval on their construction, I would like your concurrance that these revetments are no longer required based upon Community Science's recent study.

If you have any questions or you would like further documentation on this matter, please contact me immediately.

Sincerely,

AFFILIATED MORTGAGE & DEVELOPMENT COMPANY

Allan L. Whitesel

Allan L. Whitesel, P.E.
Chief Engineer

AW/sd

AGREED:

Mr. Richard Leonard
Executive Engineer

Date: _____

community development sciences
corporation

RECEIVED AUG 25

August 22, 1980

Mr. Allen Whitesel
AMDeC
P.O. Box 25000
Albuquerque, NM 87125

Re: Pino Arroyo Reanalysis Adjacent to Village Greens

Dear Allen:

In response to your recent request I have reanalyzed the flood plain adjacent to Village Greens in light of the current grading. I am pleased to report that the present cross sections indicate that the flowline of the channel is now a minimum of 75' north of the property lines with the new edge of flood plain a minimum of 22' from the property lines. Flow velocities compare favorably with previous figures running in the 8 to 10 fps range.

In light of this analysis, the way in which the sod held up during the recent deluge, and the overall lack of encroachment during the recent flows, I feel I can recommend to you that revetments will not be needed anywhere adjacent to Village Greens. This recommendation is still contingent upon incorporation of our previously suggested planting and mowing scheme for the area.

I hope this information will serve your needs.

Sincerely yours,

Kent Whitman/lds

Kent M. Whitman, P.E.

KMW/lds

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0001

SURVEYING
ENGINEERING
LAND PLANNING

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE April 14, 1980

REF. NO.

RECEIVED
APR 15 1980
CITY ENGINEER

TO: Distribution

FROM: Malcolm W. deVesty, Assistant City Attorney

SUBJECT: Tanoan Village Green & Fairway Estates Subdivisions

file

It has recently been brought to our attention that the City has approved the above subdivisions, which will be closed areas with private streets, and in many instances do not conform with the City's normal standards. This type of substandard subdivision can create many problems in the areas of refuse collection, water and sewer lines, police and fire protection, street lighting and traffic control devices, drainage, storm sewer protection, etc. Therefore, it is necessary to address these problems, and seek solutions thereto, which will result in contract agreements with the subdivisions, and control any such future developments. To this end, I have scheduled a meeting in our conference room on Tuesday, the 22nd of April at 2:00 p.m, in order to discuss these matters. I would appreciate your attendance or that of a knowledgable representative of your department or division. If there is any reason why you or your representative cannot attend, please let me know immediately.

MWdeV/nkb

Distribution: Jerry Davenport, Director, Municipal Development; Dick Heller, City Engineer; Robert Fosnaugh, Traffic Engineer; Ed Beck, Director, Transporation Department; Jack Scott, Director, Services; James Gill, Water Resources; Elroy "Whitey" Hansen, Chief of Police; Leonard Ortega, Fire Chief; Laurence Freshman, City Planner

cc: Robert K. Patten, Assistant City Attorney
Steve Schiff, Assistant City Attorney
William L. Kraemer, Deputy City Attorney

I will attend RSH

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

May 31, 1979

Mr. Bruno Conegliano
City Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico
87103

SUBJECT: Addenda to Village Greens at Tanoan Master Drainage Plan, Fairway Estates at Tanoan Master Drainage Plan, and Pino Arroyo - Tanoan Development Flood Hazard Study

Dear Bruno;

This letter is being addressed to you for inclusion in the subject drainage plans. The accompanying information will, hopefully, allow you to approve the aforementioned plans for grading and development permits.

I feel somewhat embarrassed after our meeting on May 29, 1979. You had not been privy to some prior discussions and did not have at your disposal some of the information that had been submitted to other departments (in the prescribed manner). Accordingly, we are accompanying this letter with a compendium of engineering drawings and designs for your files. Most pertinent to your analysis of the "total picture" for the current development at Tanoan will be the following:

1) Village Greens Master Drainage Plan (April 1979)
2) Fairway Estates Master Drainage Plan (May 1979)
3) Tanoan Development in Pino Basin Flood Hazard Study (March 1979)
4) Site Development Plan submittal for Village Greens (February 1979)
5) Preliminary Plat submittal for Fairway Estates. Unit 1 (January 1979)
6) Preliminary Grading Plan for Fairway Estates, Unit 1 (March 1979)
7) Final Improvement Plans for Village Greens (May 1979)
8) Academy Road (Northerly portion - preliminary design) submitted with this letter.
9) Fairway Estates, Unit 1, Improvement Plans (in process engineering - submitted with this letter)

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-8000

SURVEYING
ENGINEERING
LAND PLANNING

In order to put the "total picture" in perspective, the developer, AMDeC, and ourselves must make certain stipulations that can become part of the total committment and overall processing evaluation.

Stipulation #1:

Because of the requirements for open space recited with the Sector Plan and because of City Planning Requirements, the Golf Course will always be "open space". Because of this documentation, if being operated as a Golf Course, there will be significant maintenance personnel on hand for the repair and rehabilitation of any damage to the Course. This precept has been discussed with AMAFCA and they have a letter in their files reciting a similar justification for relaxation of 1972-2 Standards. That relaxation is not, in any way, to be construed as non-compliance but merely to provide a certain economic sensibility in the equations that are applied to potential damage during a 100 year storm. Since the golf facility is operated with certain personnel and since the attendant land development will have controls (see Stipulation #2) then it follows that certain allowances can be made for damage to grassy swales and conveyance of runoff waters (if there would be maintenance personnel to handle it). Should the unlikely event occur that there not be a Golf Course, then the provision for perpetual and permanent open space (as filed with the City) should relieve your conscience of any damage to structural facilities. By following our grading plans in accordance with the Pino Flood Hazard Study and allowing for minimum finished floor elevations so designated, the damage coefficient would not become a burden to the City.

Stipulation #2:

Because the area is the first large-scale, Planned Unit Development in the City, there must be certain allowances for recognizing that there will be a stringent architectural control requirement together with covenants and an association to manage common open space. You will notice in the submitted plats and plans that the drainage conveyances allow the City an easement within open space areas. Whether that drainage be surface or subsurface, the homeowner's association will have the right of assessment and lien rights against the property for funding a physical vehicle to repair, maintain, and otherwise remedy problems that may occur in times of infrequent runoff intervals. With this stipulation, you must also bear in mind the Architectural Control Committee is a necessary and integral portion of the overall development process and stipulation #3 should further explain the intent of this.

Stipulation #3:

The Architectural Control Committee will be reviewing building construction plans, as submitted, with certain criteria in hand. A portion of this criteria will be the site grading and drainage plans together with the approved drainage plans that we are addressing today. It will become a mandatory requirement for any builder to comply with these criteria, particularly in respect to finished floor elevations and final lot grading. This is specifically done to emphasize the responsible control of development through the housing construction process. These controls will pertain to not only the structures themselves but also the final grading, landscaping, and any walls or treatments that may fall upon the lot. Because of this situation and respecting the fact that this is a private development with strong controls (not having rear yard retention ponds also) the grading and engineering plans are somewhat unconventional. This is particularly the case in Village Greens. You will notice by the grading plans that have been previously submitted that there is no specific "pad" that is designated upon the lot. There is a minimum finished floor and a scheme for grading that allows for construction under contemporary building procedures for townhouses. The grading plan reflects an overall uniformity that will accomodate conventional construction practices without prohibitive expense and unnecessary retaining walls. When a builder commences constructions of footings and below slab duct works (sonoduct) there is considerable material ejected from the site at that stage. This material is generally used to level up the slab itself and to be used within the lot itself for landscaping, grading and other aesthetic purposes. If the site were graded to a fine, finished pad appearance, this material would still be present and the previous work done by the master grading contractor (site grading) would be obviated. It has been our experience that the type of grading plans hereby submitted justify better economics at the initial stage of construction and still achieve the same, identical purpose as a specious, more detailed grading plan.

Stipulation #4:

The initial grading plan for Fairway Estates shows a minimal amount of earthwork to disturb the natural topography. Because these are custom lots, it is felt that it is unnecessary to completely level and grade the lot without having the builders specific house orientation and design of the lot features in hand. For those lots which are incumbered, in part, with the AMAFCA drainage easement, you will notice that no permanent structures will be allowed (housing units). This has been discussed with AMAFCA as an alternative to constricting the flows of the Pino and possibly armoring or otherwise protecting the rear of the lot against any potential damage with unsightly lining. It is felt that by this technique, there will be an amount of imposed damage for non-habitable buildings but it is covered with an easement

shown on the plat, conveyed legally to AMAFCA, and relieving either agency from liabilities.

Stipulation #5:

You will notice on the grading and drainage plans that there is no rear yard ponding. The grading plans show the passage of minor roof and site runoff through adjacent properties. By comparison with submitted plats you will notice that these are covered by private easements, and again, the Architectural Control Committee will be responsible for either the adequate design of a wall to pass these minimal, occasional flows through the properties or will create a conventional rear yard lot pond that will contain the site runoff directly on the site.

Stipulation #6:

It has been discussed with AMAFCA and agreed to, that the procedure of filing an AMAFCA easement concurrent with the adjacent development is sufficient. This AMAFCA easement has been drafted and is included in this accompanying package for your review. Anywhere an individual lot is affected by this easement it will be so indicated on this plat. The Pino Analysis also, by previous agreements, has shown compliance with AMAFCA 1972-2. The portion of the study prepared by Leonard Rice and Associates in Denver as well as our own on analysis, presumes a completed development adjacent to the Arroyo and show that the methodology of the Arroyo treatment is adequate without the requirement of on-site ponding. There have been some ponds created and there will be more in the future. These are merely as a convenience and an engineering technique to minimize the portion of potential erosion and runoff repair. It is the developers option as to where these are placed and to what extent. Again, stipulation #1 must be taken into account and the entire analysis must be reviewed with this in context.

Again, I entreat you to take the entire project in its' proper context and work with us towards an approval and expediting the plans to make this a superior type of development. Delays, at this time, are critical in the economics of the project and a telephone call or other quick communication would be appreciated if you foresee any difficulties.

We are anxiously anticipating our meeting on June 6, 1979 and hope that we can proceed after that meeting.

Very truly yours,

Cliff A. Spirock
President

Kent M. Whitman, P.E.
Vice-President, Engineering

CAS/alb

cc: Sheilah Sweenhart, Jim Smith, Richard Heller, Jerry Davenport
Dan Sabo, Richard Leonard

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

MAYOR
David Rusk

May 30, 1979

E20-010

Mr. Kent Whitman
Community Science
P.O. Box 1328
Corrales, N.M. 87048

Re: Village Green at Tanoan Unit I

Dear Mr. Whitman:

I have reviewed the plan submitted for the referenced development and my comments are as follows:

The flood plain information indicates a water surface elevation of 629.' at the entrance road which indicates the flood waters could and would innundate a part of the subdivision. My understanding is that the finished floor elevations of the proposed buildings will be 1 ft. above the hydraulic grade line elevation. This information needs to be specified for each of the lots so that at the time of building permit application, this information will be available and can be stipulated in the permit.

The drainage report indicates that both volume and rate of runoff will be controlled while from today's conversation with Mr. Spirock it appears that no runoff control will be provided. I understand from Mr. Leonard that this approach is acceptable to AMAFCA below the Pino Dam but obviously the drainage report has to be written to incorporate this concept.

The drainage report also indicates that 125 cfs out of the 178 cfs,which have been estimated to flow down Academy Rd., will be intercepted by four "type C" inlets. I have little information on the design of Academy Rd. but on the basis of the graphs for catch basin openings as determined by experimental hydraulic model studies, it does not appear that such a large amount of flow can be effectively intercepted by the proposed inlets. I will be more than glad to make available this publication to you to design effective intake facilities, both at this location and at the location of the 36 inches pipe.

No channel is indicated at the out-fall of the 48 inches pipe. I believe that even the small discharges of the average yearly storms, say 20-30 cfs, will be sufficient to dreate a definite water course. Further, the flow-line

of the 48 inches pipe at the outlet must be coincidental with the flowline of the Pino Arroyo, rather than at the elevation of the 100 year water surface. No information is supplied in regard to the 36 inches pipe that is supposed to intercept the remainder of the flow in Academy Rd., and no information is given in the report as to the drainage easements that are going to be dedicated over the storm sewers or the swales that are supposed to collect the surface runoff.

From a glance at the construction plan submitted (with the notation "for review of water and sewer only") and from the mentioned conversation with Mr. Spirock, it appears that considerable changes have occurred in the thinking and design of the facilities from what is discussed in the drainage report. In particular, I want to stress that somewhere it must be stipulated that the runoff from the individual lots will be conveyed to either a street or drainage facility protected by an easement, since the site grading plan indicates that the flow will be conveyed from lot to lot. Incidentally, I note that the grading plan indicates the swales to be constructed on the slopes between adjacent lots with no-fall for a distance of 300 feet in one case and a 160 feet in another. I also note that the grading plan shows that at the entrance road, the proposed contours 19 joins with the existing contours 26 and 27 and I find myself a bit uncomfortable with the concept.

Please supply a revised report and, most importantly, drawings in concurrence with the latest plans and thinking.

Very truly yours,

Bruno Conegliano
Assistant City Engineer-Hydrology

BC/ms

cc - Richard Heller, City Engineer
Richard Leonard, AMAFCA
Sheila Sweenhart, A.M.D.E.C.-6400 Uptown Blvd N.E, Alb. 87110
Drainage file
Reading file

7 in Fairway Estates

RICHARD E. LEONARD
EXECUTIVE ENGINEER

B. H. SWINBURNE, CHAIRMAN
WILLIAM V. HEREFORD, VICE-CHAIRMAN
FRANCES MCCOY, SECRETARY-TREASURER
VERNON DOAK, DIRECTOR
KLESTON LAWS, DIRECTOR

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TELEPHONE 344-3516

May 29, 1979

Mr. Kent M. Whitman
Community Services Corporation
P.O. Box 1328
Corrales, N.M. 87048

Dear Kent:

Reference your letter of May 15, 1979, regarding Tanoan-Pino Floodplain Analysis.

I have discussed your proposed deviation from community standards with City officials. Both they and I harbor reservations. In view of this, I am retaining a consultant to provide an independent evaluation. Until resolved, please refrain from encroaching on the natural floodplain.

I have also asked our Attorney to draft a drainage easement for the Pino Arroyo as it flows through Tanoan lands. Although we don't want to impede progress, I think it best to establish one easement to cover all the property, rather than a plat-by-plat piecemeal approach. Incidentally, the open space covenants are not adequate for this purpose.

Please give me a call if you have questions.

Sincerely,

Richard E Leonard

Richard E. Leonard
Executive Engineer

REL:lc
cc: B. Conegliano
S. Sweenhart, AMDEC

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

Rec/5/9/79 RSA

INTER-OFFICE CORRESPONDENCE May 7, 1979

REF. NO._____

TO: Dick Heller, City Engineer

FROM: Gerald Davenport, Director/MDD

SUBJECT: DRAINAGE PLAN
VILLAGE GREENS

E20-D10

Dick, would you please look into why a drainage plan for Village Greens has been held up two weeks. Mr. Spirock of Community Sciences has asked me to look into the matter.

You know, Dick, as soon as we can possibly get some help, if we are going to delay something, we've got to communicate to people that we are delaying and basically for what reason, or tell them what we need. We just can't leave them hanging out there. We are beginning to operate like the Personnel Department does in not informing people what their status is.

GD:rs

5/9

Bruno has communicated w/ Jim Smith on 5/8. Approval or comment by 5/15. Easement problems required by AMAFCA (not Bruno) are a "small" hold up — the owner is informed of the problem. Maybe the engineer should talk to the owner. — We will try to keep the lines opened between the outside & our staff

RSA

cc: Bruno
file —