HYDROLOGY L22/D14 THREE PLANS

L 22- D 14

3 PLANS

JOHN B. ROBERT
EXECUTIVE ENGINEER

B. H. SWINBURNE, CHAIRMAN
FRED LUTHY, JR., VICE-CHAIRMAN
RICHARD H. CLOUGH, SEC.-TREAS.
WILLIAM V. HEREFORD, DIRECTOR
FRANCES McCOY, DIRECTOR

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2112 GIRARD N.E.
P. O. BOX 25051 - ALBUQUERQUE, N. M. 87125
TELEPHONE 256-4519

Bob –
I requested Bldg. & Bmp. check with you before issuing bldg. permit.

February 13, 1975

Mr. Bryce C. Rowen
Corps of Engineers
Post Office Box 1580
Albuquerque, New Mexico 87103

Files
Possibly for use in future when grading has been completed.

Dear Mr. Rowen:

Recently, Mr. Mike Emery of Bohannan, Westman, Huston & Associates, prepared a study which indicated that the Tijeras Arroyo could be modified through the Hidden Valley Subdivision so that a major portion of the land could be developed for housing and still pass the Standard Project Storm runoff. During our recent telephone conversation, you stated that if the Corps of Engineers had assurance from the developer that the plans as prepared by Mr. Emery for handling the Tijeras Arroyo flood would be carried out, the Corps of Engineers would modify its flood limits through the reach of the study.

Attached are copies of the supporting data which, in my opinion, will permit you to proceed with your revision of the flood limit boundaries.

The Authority will require that the grading plan and channel, recommended by Mr. Emery, will be carried out prior to the issuance of any building permits in the area.

If you have any further questions, please advise as the developer is most anxious to proceed with the construction.

Sincerely yours,

John B. Robert
Executive Engineer

cj
Encls.

cc: Mr. Michial Emery
Mr. Vern Kimmick
Environmental Planning Commission
Murray McCormick, Inc.
Western Development Company

SHIVER CONSTRUCTION CO.
GENERAL CONTRACTOR
P.O. BOX 14379
ALBUQUERQUE, NEW MEXICO 87111
TELEPHONE 505/296-0759

HOME BUILDING
ASPHALT PAVING

UTILITIES
DIRT WORK

May 16, 1975

I certify that I have checked the finished grade on Lots 8, 9, 46, 47, 48, 49, 50, 51, and Tract C-R of Phase I, Hidden Valley Subdivision, and find that these lots are within 0.5 feet of the grade as shown on the grading plans.

Kenneth L. Miller
KENNETH L. MILLER

Registered Land Surveyor
No. 4330
May 16,1975

SUBDIVISION DEVELOPMENT

MURRAY-McCORMICK, INC.
ENVIRONMENTAL DESIGN
ARCHITECTURE · ENGINEERING · PLANNING · SURVEYING

May 19, 1975

I certify that I have checked the embankment along the north limit of development for Hidden Valley Subdivision, and have found that the finish grades are in substantial accordance with the grades required by the Drainage Plan prepared by Bohannan, Westman, Huston and Assoc., Inc.,to supply adequate protection from storm drainage.

Ralph K. Hicks

RALPH K. HICKS
N.M.L.S. No. 3307

2601 WYOMING BLVD., NE. SUITE F/ALBUQUERQUE, NEW MEXICO 87110/505-292-1936
CALIFORNIA ALASKA OREGON WASHINGTON TEXAS GEORGIA FLORIDA COLORADO

CITY OF ALBUQUERQUE, NEW MEXICO
CITY ENGINEER'S OFFICE

MEMORANDUM - May 20, 1975

TO: Mr. Charles W. Volz, Supt. Building Inspection Division
FROM: Kleston H. Laws, Assistant City Engineer, Hydrology
SUBJECT: BUILDING PERMITS, HIDDEN VALLEY SUBDIVISION

In accordance with the attached two certifications building permits may be issued at the following addresses:

601, 603, 605, 606, 608 Green Valley Drive, SE
601, 603, 605, 607 Cottonwood Court, SE

KHL/cg

16 July 1976

Alfred C. Ratchner
209 Palomas NE
Albq N.M. 87108

Re: Hidden Valley Subdivision

Dear Mr Ratchner:

Enclosed are plans and a letter from Bohannan, Westman, Huston and Associates which states the Tramway Diversion Channel along Four Hills Road will not effect the maximum water surface elevation in Tijeras Arroyo.

Also enclosed are certifications from registered land surveyors about the grading of Hidden Valley, although they do not comment about the grading of Tijeras Canyon arroyo.

Very truly yours,

Kleston H Laws

cc James L Sutton

Big envelope

REQUEST FOR SURVEY

DATE: 12/20/76

FROM: CITY ENGINEER [ ] ASSISTANT CITY ENGINEER-DESIGN [ ]
WATER DIVISION [ ] ASSISTANT CITY ENGINEER-FIELD [ ]
SEWERAGE DIVISION [ ] TRAFFIC ENGINEERING DIVISION [ ]

SUBJECT: REQUEST FOR SURVEYING Cove Angel

1. Invert elevations, length of outlet lines, M.H. to drops: [ ]
Profile
2. ~~Cross section~~ at 100 ft. interval. Include elev. of [✓]
3. Topographic survey, flow lines, road crowns: [ ]
4. Right-of-way staking or checking: [ ]
5. Blue Tops. [ ]
6. Curb & Gutter Staking [ ]

OTHER: [ ]

LOCATION DATA: Tuelas Arroyo located at Hidden Valley and Foal Hills Subd.

SURVEYOR INSTRUCTIONS: Pick up spot elev and centerline at 100 ft intervals.

Purpose of Survey | Street Design [ ] Storm or Sanitary Sewer Design [ ]

Public Complaint [ ] | R/W Check [ ]

Other:

V.M. Kimmick
REQUESTOR SIGNATURE

Completion Date: 12 20 76

Approved: Asst. City Engineer-Field or City Engineer

Completed By

WORK DATA:
Curb & Gutter Survey [ ] Const. [ ] | Sanitary Sewer Survey [ ] Const. [ ]
R/W Acres [ ] Profiles L.F. [ ] Topographic Acres [ ] Bench Marks L.F. [ ]
Assessments Sewer [ ] Sidewalk [ ] Water [ ] Sewer Loc. Hrs. [ ]
Restaking Curb & Gutter L.F. [ ] Sewer L.F. [ ] Regrading C & G, L.F. [ ]

Miscellaneous:

Numerical Work Data:

TRINITY ENTERPRISES, INC.

401 Coors Road, N.W.
Suite 202
Albuquerque, New Mexico 87105
(505) 831-2012

RECEIVED

JUN 19 1980

CITY ENGINEER

City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87102

June 13, 1980

Re: Partial replat, Hidden Valley Phase I
SP 5-80-323, Zone Atlas L-22

Dear Sir:

Please review the accompanying summary plat and advise of the conditions necessary for your approval.

The private streets were not named on the original recorded plat, but the location, the most westerly portion, is apparent, and defined within the legal description.

The lettered tracts on both the original plat and the replat are common grounds and serve as utility easements; however, the geometry has changed. Due care has been taken to ensure that the existing facilities are not infringed upon as a result of the redesign.

Your prompt attention would be appreciated.

Yours very truly,

Gordon J. Douglas

Gordon J. Douglas

Gas Co. of N.M.
PNM
Mt. Bell
City Engr.
Planning Dept.

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

Commute
ASAP

RICHARD E. LEONARD
EXECUTIVE ENGINEER

S. H. SWINBURNE, CHAIRMAN
WILLIAM V. HEREFORD, VICE-CHAIRMAN
FRANCES McCOY, SECRETARY-TREASURER
VERNON OOAK, DIRECTOR
KLEETON LAWS, DIRECTOR

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority
2600 PROSPECT AVE. N.E.
P. O. BOX 25851 - ALBUQUERQUE, N. M. 87125
TELEPHONE 344-3516

RECEIVED
JUL 21 1980
CITY ENGINEER

July 21, 1980

Memo For: R. Heller
C. Volz, Chief Building Officer
B. Conegliano
F. Aguirre
Western Development

L22-014

From: R. Leonard Richard E Leonard

Subject: Hidden Valley

Recommend no building permits be issued for the Hidden Valley Subdivision until the dike on Tijeras Arroyo is repaired and upgraded.

ic

candlelight homes, inc.
western development company, inc.

Western Holding Company

Gerhard Muller
president

November 13, 1980

Mr. Richard E. Leonard
Executive Engineer
A.M.A.F.C.A.
P.O. Box 25851
Albuquerque, NM 87125

Reference: Letter of Agreement for Tijeras Arroyo
Dike Repair abutting Hidden Valley

Dear Mr. Leonard:

This letter is to address the conditions required by AMAFCA to release the moritorium placed on building permits in the Hidden Valley Development.

The following are the conditions as I understand them:

1. Western Holding Company will reconstruct the Berm to it's original condition and place a 6" thick concrete treated base material (300-600 psi range) on the arroyo side of the Berm for a vertical height of 5 feet with a three foot header wall at the toe of the slope as designated in exhibit One.
2. Western Holding Company will also place a 36" diameter pipe through the Berm to handle flows from the arroyo running from the south into the Tijeras Arroyo. An overflow weir will be placed at the Berm to handle 150% of the 100 year flow as calculated in the MSM Drainage Report for Hidden Valley Phase IV (dated June, 1978). See Exhibit Two.
3. Western Holding Company further guarantees that the new buildings constructed will not be occupied until the Berm improvements are constructed and accepted by AMAFCA.
4. Western Holding Company will retain an engineer of it's choice to design said improvement and inspect these improvements to certify that they have been constructed as per the approved construction drawings.

If these four conditions are in agreement with you, I would appreciate your signature endorsing this proposal and releasing the building permits currently in the City Building Department.

Very truly yours,

Gerhard Muller,
Western Holding Company

ACCEPTED AND APPROVED:

Richard E. Leonard

Richard E. Leonard
Executive Engineer, AMAFCA

Date
11/14/80

1224 pennsylvania n.e. albuquerque, new mexico 87110 phone (505) 268-4395

Dan Please check. Shouldn't overflow weir be 3000 psi concrete rather than CTB?

TRINITY ENTERPRISES, INC.

Civil Engineers
Land Planners
Developers

3107 Eubank, N.E.
Suite 3
Albuquerque, New Mexico 87111
(505) 292-7666

FEB 13 1981
MRAFCA

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

February 11, 1981

Mr. Richard E. Leonard
Executive Engineer
A.M.A.F.C.A.
P.O. Box 25851
Albuquerque, NM 87125

Re: Dike Repair Abutting Hidden Valley
Tijeras Arroyo.

Dear Mr. Leonard,

On the behalf of Western Holding Company, enclosed please find a copy of the construction drawing for the Hidden Valley Dike Repair. Consider this a request for a letter of authorization to Western Holding Company giving permission to proceed with said improvements.

Upon completion of construction the condition in the November 13, 1980 letter will have been completed.

Your reply will be considered authorization to proceed.

Sincerely,

Andre Houle,
Vice President

AH/dd
enclosures

cc: Gerhard Muller - Western Holding Company

February 13, 1981

Mr. Andre Houle, Vice President
Trinity Enterprises, Inc.
3107 Eubank, NE Ste 3
Albuquerque, NM 87111

Re: Dike Repair Tijeras Arroyo at Hidden Valley

Dear Sir:

Mr. Leonard has asked that I reply to your letter of February 11.

We offer the following comments regarding the construction drawings:

1. The weir section should be 6" of 3000 p.s.i. concrete rather than cement treated base. A 20 foot wide by one foot deep riprap blanket will be required on the Tijeras Arroyo side of the weir.

2. The typical berm detail shows a slope of 1:1 for the dyke. This should be not steeper than 3:1.

With these additions you may proceed with the improvements.

Sincerely,

Dan Sabo
Engineer

ic
cc: Richard Heller, City Engineer

ENGINEERS & PHOTOGRAMMETRISTS

BOHANNAN WESTMAN HUSTON & ASSOCIATES INC.

4125 CARLISLE BLVD. N.E.
ALBUQUERQUE, NEW MEXICO 87107
PHONE 505 881-2000

July 9, 1976

Mr. Kleston H. Laws
Assistant City Engineer, Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Tramway Diversion and Hidden Valley Subdivision

Dear Mr. Laws:

Late in 1974, we did a short hydraulic study for the developers of the Hidden Valley Subdivision. At the conclusion of that study, we supplied the developer with the enclosed drawing.

This drawing shows that the subdivision must be raised 9 to 10 feet and the channel in the Tijeras Arroyo regraded in order to prevent flooding in the subdivision. That was our last contact with the project, and we have no way of knowing if our recommendations were followed or not.

If our recommendations were followed, the Hidden Valley Subdivision will be safe from flooding for floods up to the Standard Project Flood magnitude. If our recommendations were not followed, we can make no comment on the flood hazard in Hidden Valley.

The peaks are sufficiently shifted in time for the Tijeras Arroyo and the Tramway channel so that water coming from the Tramway channel will have no effect on the maximum water surface elevation in the Tijeras Arroyo.

If we can be of further assistance, please feel free to contact us.

Sincerely yours,

James L. Sutton
Engineering Manager

RHG/sh
Job Number E74-223

July 16, 1981

Western Holding Co.
1224 Pennsylvania, NE
Albuquerque, NM 87110
Att.: Gerhard Muller

Subject: Dike Repair abutting Hidden Valley

Dear Sir:

On November 13, 1980, a letter of agreement was executed between Western Holding Company and AMAFCA concerning improvements to the dike at Hidden Valley. Subsequently on February 13, 1981 plans prepared by your consulting engineer were approved for construction.

During a recent field trip it was noticed that repairs to the dike had not been made.

A part of the agreement was that new buildings would not be occupied until Berm improvements were constructed and accepted by AMAFCA.

Please let us know if improvements are still planned and when the plan might be implemented.

Sincerely,

Dan Sabo
Drainage Engineer

ic

CC: Andre Houle, Trinity Enterprises, Inc.
Richard S. Heller, City Engineer

RICHARD E. LEONARD
EXECUTIVE ENGINEER

B. H. SWINBURNE, CHAIRMAN
R. WARD HUNNICUTT, 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 25851 - ALBUQUERQUE, N. M. 87125
TELEPHONE 884-2215

L22-D14

RECEIVED
NOV 17 1981
CITY ENGINEER

November 13, 1981

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

Mr. Gerhard Muller
Western Holding Co.
1224 Pennsylvania, NE
Albuquerque, NM 87110

Dear Mr. Muller:

A year ago this month I released a hold on Hidden Valley building permits. In turn, you agreed to reconstruct the dike and make other flood-protection improvements. To date you have not done so.

Please advise me in writing no later than December 1, 1981, when you will fulfill your part of the contract.

Sincerely,

Richard E Leonard

Richard E. Leonard
Executive Engineer

ic
Encls. (related correspondence)

cc: City Engineer ✓

ORDINANCE 58-1974 (AX-74-8, Z-74-33)

ANNEXING HIDDEN VALLEY SUBDIVISION TO THE CITY OF ALBUQUERQUE, NEW MEXICO; AND AMENDING THE ZONE MAP OF THE CITY OF ALBUQUERQUE AS SHOWN IN ORDINANCE NO. 2726, AS AMENDED.

WHEREAS, the owner of the area to be annexed and hereinbelow described in this Ordinance, which land is contiguous to the boundaries of the City of Albuquerque, New Mexico has heretofore presented a petition properly signed, accompanied by a map of said contiguous territory, petitioning the governing body of the City of Albuquerque, New Mexico to pass and adopt an Ordinance annexing said land to the City;

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. The following described territory is hereby annexed to and made a part of the City of Albuquerque for all purposes upon filing of a copy of this Ordinance and a map of the territory so annexed in the office of the County Clerk of Bernalillo County, New Mexico, and publication of this Ordinance according to law:

All of Hidden Valley Subdivision as filed in the office of the County Clerk of Bernalillo County, New Mexico on September 13, 1974.

Section 2. The zone map referred to in Ordinance No. 2726, as amended, is hereby amended as follows:

Establishment of SU-1 zoning (Special Use For A Planned Residential Development) for the area described in Section 1 above.

CORRECTION OF

Hidden Valley

76818

GRANT OF EASEMENT
FOR
WATER, SEWER AND PUBLIC UTILITIES

THIS INDENTURE made and executed this 29th day of July, 1975, by and between Western Development Company, a New Mexico Corp.

in the County of Bernalillo and State of New Mexico hereinafter called the Grantors and THE CITY OF ALBUQUERQUE, NEW MEXICO, a municipal corporation, hereinafter called Grantee.

WITNESSETH, that for good and valuable consideration the receipt of which is hereby acknowledged the Grantors have this day bargained and sold and by these presents do sell, convey and deliver unto the City of Albuquerque a permanent easement as right-of-way including the permanent right to enter upon the real estate described at any time that it may see fit and construct, maintain and repair, water lines, sanitary sewer lines and public utilities across, through, and under the lands hereinafter described and the further right to remove trees, bushes, undergrowth and obstructions interfering with the location, construction and maintenance of said utilities.

The land affected by the grant of this easement and right-of-way is located in the County of Bernalillo and State of New Mexico and is more particularly described as follows:

> A 20 foot wide water easement within Hidden Valley, an Addition to the City of Albuquerque, Sections 26 & 27, T.10N., R.4E., N. M. P. M., Bernalillo County, New Mexico as the same is shown and designated on the plat of said addition filed in the office of the County Clerk of Bernalillo County, New Mexico on September 15, 1974 and being herein more particularly described as follows:
>
> Beginning at the southwest corner of the easement herein set forth, said southwest corner being identical to the southwest corner of said Hidden Valley Addition; thence S89 degree 14' 10" E 202.38 feet to the southeast corner of the easement herein set forth; thence N45 degree 55' 05" E 28.36 feet to the northeast corner of the easement herein set forth; thence N89 degree 14' 10" W 227.27 feet to the northwest corner of the easement herein set forth; thence S12 degree 41' 10" E 20.56 feet to the southwest and beginning corner of the easement herein set forth, containing 0.099 acres, more or less.

TO HAVE AND TO HOLD the said right and easement for the uses and purposes aforesaid, unto Grantee its successors and assigns for so long as said easement shall not be abandoned for use as a right-of-way for aforesaid utilities.

The Grantors do hereby covenant with Grantee that they are lawfully seized and possessed of the real estate above described and that they have a good and lawful right to convey it or any part thereof, that it is free from all encumbrances except those of record and taxes due and owing the Treasurer of Bernalillo County and that they will forever warrant and defend the title thereto against the lawful claims of all persons whomsoever.

Grant of Easement

As a part of the consideration for this grant, the Grantors do hereby release any and all claims for damages for whatsoever cause incidental to the exercise of the rights herein granted provided, however, that the Grantee agrees to save Grantors harmless from any and all liability that may arise as a result of the construction and use of the easement for the purposes set forth.

IN WITNESS WHEREOF, the parties have set their hands and seals this 29 day of JULY, 1975.

KRISTINA DIRAK CC.

STATE OF NEW MEXICO)
) ss.
County of Bernalillo)

The foregoing instrument was acknowledged before me this 29th day of July, 1975, by

Mary G Woods
Notary Public

My Commission expires:
My Commission Expires Feb. 25, 1979

APPROVED AS TO DESCRIPTION
Date July 28-75
V. M. KIMMICK CITY ENGINEER

Approved as to Form:
T. J. McMahon
Asst. City Attorney
Date: July 29-75

State of New Mexico
County of Bernalillo } SS
This instrument was filed for record on
JUL 29 1975
At 11:00 o'clock A.M. Recorded in Vol. Misc 452
of records of said County Folio 369-370
Emma C Anzures
Clerk & Recorder
Deputy Clerk

State of New Mexico
County of Bernalillo } SS
This instrument wes filed for record on
338 JUL 30 1975
At ... o'clock ... m. Recorded in Vol. Misc 452
of records of said County Folio 335-337
Emma C Anzures
Clerk & Recorder
Deputy Clerk

McINTIRE
&
QUIROS
SOUTHWEST

LAND PLANNING
CIVIL ENGINEERING
SURVEYING

DRAINAGE STUDY
HIDDEN VALLEY
ALBUQUERQUE, NEW MEXICO
JANUARY, 1975

Prepared By:

McINTIRE & QUIROS/SOUTHWEST

1453 RIO RANCHO ESTATES DR., RIO RANCHO ESTATES, NEW MEXICO 87124 (505) 896-4190

I. GENERAL

The proposed development lies in a delta plain formed by the Tijeras Arroyo and a natural drainage from the South. Presently, the area is utilized for stables and riding areas. The normal summer storms infrequently affect the proposed development area.

II. LOCATION

Hidden Valley is located in the City of Albuquerque, New Mexico more specifically in South East quarter of Section 27, Township 10 North, Range 4 East. The proposed development is South of the Tijeras Arroyo and West of the Four Hills entrace road.

III. EXISTING DRAINAGE

The evident channel of the Tijeras Arroyo is located three to four hundred feet North of the proposed development. An arroyo enters the property at the Southeast corner, in a northerly direction, crosses half the property and disappears in an alluvial fan. Several minor drainages intrude from the East and South but soon disappear.

PROPOSED DRAINAGE PATTERNS

The alluvial plain will be raised well above the computed water surface in the Tijeras Arroyo. The unnamed arroyo at the Southeast corner will be channelized to obtain uniform velocity and reduce silting. The remaining off-site contributing runoff will be interecepted by ditches and conveyed to suitable dischare points.

TIJERAS ARROYO

A flood plain analysis was prepared by Bohannon Westman Huston & Associates, Inc., dated January 1975. This report indicated that with the construction of a 400 foot wide graded earth channel with 3:1 side slopes, the project can be graded as planned above the water surface of the standard project flood.

CONCLUSION

The proposed drainage plan will convey the off-site drainage through the proposed subdivision with a limited increase in quantity of runoff.

Wm J. McDermott

William J. McDermott
P.E. & L.S.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
No. 1855
NEW MEXICO
WM. J. McDERMOTT

EXHIBIT

Enclosed is a "Flood Plain" Alterations, Army Corps of Engineers, Albuquerque Arroyos, Part IV Flood Plain Study, Area 2, Tijeras Canyon. Dated January, 1975.

FLOOD PLAIN ALTERATIONS

ARMY CORPS OF ENGINEERS
ALBUQUERQUE ARROYOS, PART IV
FLOOD PLAIN STUDY

AREA 2 - TIJERAS CANYON
FOR
WESTERN DEVELOPMENT COMPANY
ALBUQUERQUE, NEW MEXICO

PREPARED BY:

BOHANNAN WESTMAN HUSTON & ASSOCIATES, INC.
4125 Carlisle Blvd., NE
Albuquerque, New Mexico 87107

STATE OF NEW MEXICO
MICHIAL M. EMERY
No. 5194
REGISTERED PROFESSIONAL ENGINEER

Michial M. Emery

Michial M. Emery
Chief Design Engineer
N.M.P.E. No. 5194

FLOOD PLAIN ALTERATIONS

ARMY CORPS OF ENGINEERS
ALBUQUERQUE ARROYOS, PART IV
FLOOD PLAIN STUDY

SCOPE:

Late in 1974, personnel at the Army Corps of Engineers were making the final preparations for the publishing of their Albuquerque Arroyos, Part IV, Flood Plain Study. This study includes determination of flood plain limits for both the Intermediate Regional Flood and the Standard Project Flood along the entire length of Tijeras Canyon. At that time, Western Development Company had begun site work on their Planned Unit Development in the Four Hills area adjacent to Tijeras Canyon. Western Development then learned that the flood plains depicted in the Corps study encroached on their property placing serious doubt on the feasibility of the project. As a result, Western Development requested this firm to establish what course of action, if any, could be taken to alter the present flood plain patterns so that they will not encroach upon the subject property.

HYDRAULIC ANALYSIS:

All hydraulic analysis was done using the Corps of Engineers' HEC-2 Water Surface Profiles computer program. Western Development Company plans to create an embankment along the northern property line of the parcel by excavating into the hill on the south side and using the excavated material as fill on the north side. Spot elevations of the

proposed embankment as well as an outline of the property itself are shown on Plate I which is attached. As a first step in analysis, this proposed embankment was programmed into the computer so that an exact determination of its effects on the flood plains could be established. With only this embankment installed, the SPF flood plain would rise above the top of the embankment by more than one foot in some areas.

It therefore became obvious that some sort of channel improvement would be necessary to insure that the flood plains will remain below the embankment elevations. Since earth grading is the most economical approach to channel improvement, this concept was adopted. A 400' wide "template" with 3:1 sideslopes was superimposed upon the existing streambed between sections 12.2 and 12.51 at the alignment shown on Plate I. Between sections 12.31 and 12.38 the template was assumed to be transversely level at an invert elevation equal to that of the existing stream thalweg. The resulting improved earth channel was extended to sections 12.2 and 12.51 and was blended back into natural ground at these sections. The process of blending back into existing ground was assumed to take place over the entire distances between sections 12.2 and 12.31, and sections 12.38 and 12.51. This concept proved to be hydraulically feasible when analyzed by the HEC-2 computer program. With such regrading, the SPF would pass by the subject property

with no less than one-half foot of freeboard between the water surface and the top of the proposed embankment.

SUMMATION OF RECOMMENDATIONS:

In order to safely pass floods as great as the Standard Project Flood past the subject property owned by Western Development Company, the following course of action is recommended:

1) Acquisition of actual field surveyed channel cross sections in the vicinity of the property to verify the accuracy of the topo maps.

2) Construction of the earth fill embankments as planned. This embankment must continue at or above the proposed elevations all the way back into existing ground. It cannot consist merely of a berm with low ground on either side. Therefore, the embankment should match into existing ground at elevations 5544 or higher on the east side and at elevation 5522 or higher on the west side. Since the actual difference in elevation between the embankment edge and the channel invert is the most important factor here, any discrepancies between actual surveyed elevations and those shown on the topo maps should result in an adjustment of the final embankment elevations. These elevations should be adjusted so that the actual difference between channel invert elevations and embankment elevations will be equal to that shown on Plate I.

3) Construction of the 400' wide improved graded earth channel with 3:1 sideslopes in the location and at the alignment shown on Plate I. Construction should take place according to detailed plans prepared by a duly licensed consulting engineer following the acquisition of the field survey.

RUNOFF COMPUTATIONS

Sheet No. _____

Job No. _____

Drainage Area No. A

Area = 65.6 acres

Maximum Overland Flow: L = 2800 S = 4%

Maximum Channel Flow:

Channel No. 1 L = 950 S = 16%

Channel No. 2 L = _____ S = _____

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow: 25 min.

Channel No. 1 Flow:

Velocity = 6 ft/sec; Time = $\frac{950}{6 \times 60}$ = 3 min.

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = $\frac{\quad}{\quad \times 60}$ = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = $\frac{\quad}{\quad \times 60}$ = _____ min.

Total Accumulation Time: T = 28 min.

$i = \frac{189}{T+25} = ____ = 3.57$

Q = CIA = (.40)(3.57)(65.6) = 94 c.f.s.

Date: _____

Comp. by: _____

Checked by: _____

RUNOFF COMPUTATIONS

Sheet No. _____

Job No. _____

Drainage Area No. B

Area = 29 acres

Maximum Overland Flow: L = 500' S = 4%

Maximum Channel Flow:

Channel No. 1 L = 1200 S = 3%

Channel No. 2 L = 1200 S = 4%

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow: 5 min.

Channel No. 1 Flow:

Velocity = _____ ft/sec; Time = $\frac{1200}{4 \times 60}$ = 5 min.

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = $\frac{1200}{6 \times 60}$ = 3 min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = $\frac{\quad}{\quad \times 60}$ = _____ min.

Total Accumulation Time: T = 13 min.

$i = \frac{189}{T+25} = ____ = 4.97$

Q = CIA = (.40)(4.97)(29) = 58 c.f.s.

Date: _____

Comp. by: _____

Checked by: _____

RUNOFF COMPUTATIONS

Sheet No. _____

Job No. _____

Drainage Area No. C

Area = 9.8 acres

Maximum Overland Flow: L = 1000 S = 8%

Maximum Channel Flow:

Channel No. 1 L = _____ S = _____

Channel No. 2 L = _____ S = _____

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow: 10 min.

Channel No. 1 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Total Accumulation Time: T = 10 min.

$$I = \frac{189}{T+25} = ____ = 5.4$$

$$Q = CIA = (.40)(5.4)(9.8) = 21 \text{ c.f.s.}$$

Date: _____

Comp. by: _____

Checked by: _____

RUNOFF COMPUTATIONS

Sheet No. _____

Job No. _____

Drainage Area No. D

Area = 90.3 acres

Maximum Overland Flow: L = 2800 S = 4%

Maximum Channel Flow:

Channel No. 1 L = 950 S = 16%

Channel No. 2 L = 1500 S = 4%

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow: 25 min.

Channel No. 1 Flow:

Velocity = 6 ft/sec; Time = $\frac{2450}{6 \times 60}$ = 7 min.

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = $\frac{\quad}{\times 60}$ = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = $\frac{\quad}{\times 60}$ = _____ min.

Total Accumulation Time: T = 32 min.

$$I = \frac{187}{T+25} = ____ = 3.32$$

$$Q = CIA = (.40)(3.32)(90.3) = 120 \text{ c.f.s.}$$

Date: _____

Comp. by: _____

Checked by: _____

DEPARTMENT OF THE AR

ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1580
ALBUQUERQUE, NEW MEXICO 87103

Hidden Valley Subdiv. Fleetwood

SWAED-P

28 January 1975

RECEIVED
JAN 2 1975
CITY ENGINEERS

Mr. Michial M. Emery
Chief Design Engineer
Bohannan Westman Huston & Associates, Inc.
4125 Carlisle Blvd. N.E.
Albuquerque, NM 87107

Dear Mr. Emery

We have completed an engineering review of the computer output and plans on flood plain modifications in Tijeras Canyon below the Four Hills crossing as requested in your letter dated 9 January 1975.

Our review indicates the suggested planned improvement will not create greater depths of flooding throughout the reach.

If we may have a letter of intent from the Western Development Company and approval from the Albuquerque Metropolitan Arroya Flood Control Authority (AMAFCA) and the city, we will approve the new designated flood plain for incorporation in our report.

Sincerely yours,

BRYCE C. ROWEN, P.E.
Acting Chief, Flood Plain
Management Services Branch

Copy furnished:
Mr. V.M. Kimmick, City Engr
Mr. John B. Robert, Exec Dir, AMAFCA

1841