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djb

DALE J. BELLAMAH CORPORATION

1529 EUBANK BOULEVARD, NE
POST OFFICE BOX 11097

ALBUQUERQUE, NEW MEXICO 87112
TELEPHONE 299-7631

December 20, 1972

Mr. V. Kimmick, City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Storm Drainage Report for
Four Hills Village
Unit No. 16

Dear Mr. Kimmick:

Enclosed please find one copy of the Storm Drainage Report for Four Hills Village, Unit 16 for your information, review and file. Subsequent to approval by AMAFCA, I will bring this plat to your office for your signature and approval.

Sincerely,

DALE BELLAMAH LAND CO., INC.

Larry D. Stroup, P.E. & L.S.
Chief Engineer

LDS:ccs
Encl.

Bob

MJ

STORM DRAINAGE STUDY
RELATIVE TO DEVELOPMENT OF
FOUR HILLS VILLAGE
SIXTEENTH INSTALLMENT
ALBUQUERQUE, NEW MEXICO

NOVEMBER 1972

REVISED
DECEMBER 1972

MAC CORNACK AND BURNS
Consulting Engineers, Inc.
Albuquerque, New Mexico

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CONSULTING ENGINEERS, INC.
1517 GIRARD BLVD., N.E. — SUITE D
ALBUQUERQUE, NEW MEXICO 87106

JAMES A. MacCORNACK, P.E.
FRED BURNS, P.E.

(505) 266-7789

November 14, 1972

Dale J. Bellamah Corporation
1529 Eubank Boulevard, NE
Albuquerque, New Mexico 87112

Gentlemen:

Transmitted herewith is the "Storm Drainage Study Relative to Development of Four Hills Village, Sixteenth Installment." This study comprises a comprehensive analysis in accordance with the requirements of Resolution No. 1972-2, Albuquerque Metropolitan Arroyo Flood Control Authority, and of the City of Albuquerque.

Thank you for the opportunity of participating in your project.

Respectfully submitted,

MAC CORNACK AND BURNS
Consulting Engineers, Inc.

Fred Burns

Fred Burns, P.E.
New Mexico Registration No. 4000

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STORM DRAINAGE STUDY
RELATIVE TO DEVELOPMENT OF
FOUR HILLS VILLAGE
SIXTEENTH INSTALLMENT
ALBUQUERQUE, NEW MEXICO

1. PURPOSE: This report is to present those data relative to estimation of quantity and proposed means of proper handling of storm runoff drainage as it is related to development of the Sixteenth Installment, Four Hills Village.

2. SCOPE: This report is presented to establish criteria and general means to be used in storm runoff drainage for the subsequent development of the subject properties.

3. LOCATION: The land area under study of this report is a re-plat of portions of Tract 'E' of re-plat of Four Hills Village, Fifth Installment. It lies in SW 1/4 of Section 34, T10N, R4E NMPM and comprises approximately 9.45 acres. The south and west boundaries of the property are also boundaries of the City of Albuquerque, with the entire area being in the City.

4. EXISTING DRAINAGE CONDITIONS:

A. General: The tract under consideration is presently undeveloped. There is one arroyo which flows westward across the property near the south boundary. The area upslope from the property is developed.

B. Topography: The tract is located on the alluvial clinoplain of the Manzano Mesa within one mile of the base of the foothills. The land

slopes rather sharply to the west. The area is covered with sparse grass vegetation. The surface soil is mostly decomposed granite. There are no notable geologic features unusual to the general area. The general slope of the land is approximately 4.6 percent downward from east to west. The range of elevation is from 5590 to 5654.

C. Drainage Areas: The areas upslope on the watershed of the property under consideration have been developed as to streets and other drainage facilities such that all runoff has been intercepted east of the east property line of the tract. The arterial street Wagontrain SE intercepts the arroyo which crosses the property at a point approximately 1000 feet upslope. At this point the drainage area would have a design flow of approximately 106 cfs. This flow would follow Wagontrain to the west and north to a point where it intersects a dedicated drainage easement past the property under consideration.

The drainage plans have been reviewed as well as field inspection made to ascertain that upslope drainage has been successfully designed to protect the property under consideration from all upslope drainage.

D. Proposed Development: The Four Hills Village Sixteenth Installment is proposed for development as a single family residential area comprising 30 lots to be located on the extension of Rio Arriba Avenue SE which would extend westward from the existing intersection with Wagontrain. Rio Arriba Avenue would terminate at the west end at the City Limit such that it could be extended westward with future development.

5. PROPOSED DRAINAGE PLANS:

A. Design Criteria:

(1) General: Resolution No. 1972-2, Albuquerque Metropolitan Arroyo Flood Control Authority.

(2) Project Storm: 100-year intensity; frequency-duration as shown on the curve of Chart 1, "1963 Master Plan of Drainage for the City of Albuquerque and Environs," as prepared by Gordon Herkenhoff and Associates, Inc., Consulting Engineers.

B. Protection from Upslope Drainage Areas: The areas upslope (eastward) of the project have been developed under the master plan drainage study of the area as prepared by Ralph K. Hicks and Associates dated March 1971. This plan provides for the watershed areas of the property under consideration to be intercepted by Wagontrain SE and to continue northwest by the property to a point of intersection with a dedicated drainage easement. The street flow at the intersection of Wagontrain and Rio Arriba SE would be approximately 106 cfs from the project storm on Wagontrain.

The intersection as constructed presently has a waterblock to prevent such flow from leaving Wagontrain and thereby protects the property under consideration from any upslope storm runoff drainage.

C. Internal Tract Drainage: It is proposed that the lot grading of the tract will be terraced in the east-west profile such that percolation will be enhanced. Lots will be graded to drain to the street (Rio Arriba Avenue SE). The internal tract drainage will be handled as street flow to the west.

6. CONCLUSIONS AND RECOMMENDATIONS: On the basis of the study of this report, the following recommendations are proposed.

A. Street Grade - Rio Arriba Avenue SE: This street should provide profile and cross section to carry internal tract drainage. See Exhibit A of the Appendix.

B. Lot Grading: It is proposed that all lots be terrace graded in the east-west profile. The back lot area of each lot graded to provide a ponding area. The front lot area to be sloped to the street for drainage. On this basis, the area contributing to storm runoff can be taken as 50% of the total area.

Provided the above recommendations are implemented prior to or concurrent with development of Four Hills Village Sixteenth Installment, it is concluded that the existing flow patterns of the area due to storm runoff drainage will not be altered or will be improved in such a way that lower-lying properties will not be threatened with flooding eminating from the tract under consideration; further, the tract itself is successfully protected from upslope runoff and therefore can be developed.

Respectfully submitted,

MAC CORNACK AND BURNS
Consulting Engineers, Inc.

Fred Burns

Fred Burns, P. E.
New Mexico Registration No. 4000

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STORM DRAINAGE STUDY
FOUR HILLS VILLAGE
SIXTEENTH INSTALLMENT

Burns

EXHIBIT A

Internal Trout Drainage:

Area: 9.45 ac.

Area of Runoff = 0.5 × 9.45
= 4.73 ac.

Slope $\frac{149.2 - 93.5}{1320} = .04144$

Time of Concentration = 17 min

C = 0.600 i = 4.4 in/hr

Q = 4.73 × .6 × 4.4 = 12.50 cfs

Street Capacity: 32'

Capacity = 15.0 cfs

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