HYDROLOGY K21/D2 2 PLANS

K21/D2

---

2 Plans

Princess Jeanne

Retention Basin Design

from "A Simple Method of Retention Basin Design" by G. Prijanaiken and H. W. Harper, WATER & SEWAGE WORKS December, 1973. (See above publication for definition of terms used in this section of calculations.)

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

$$V_n = \frac{11340\,T}{T+25}$$

$$V_s = \frac{11340\,T}{T+25} - 40\,C_o\,T$$

$$T = -25 + \sqrt{-\frac{14.5}{C_o}}$$

for orifice outlet

Composite runoff coefficient for developed state:

$$C = \frac{C_1 \times A_1 + C_2 \times A_2 + C_3 \times A_3 \ldots}{A_1 + A_2 + A_3 \ldots}$$

for 30yr runoff $Q = CIA = 0.18$ cfs from earlier design.

then $CA_{30yr} = \frac{0.18}{5.4} = 0.033$

$$C_{composite} = \frac{0.033 + (.43 \times .9) + (.02 \times .9) + (.05 \times .4)}{0.67}$$

$$= 0.684$$

$$Q_0 = \frac{\text{Allowable Cfs/ac}}{\text{Acreage} \times \text{Runoff coefficient}}$$

$$= \frac{Q_{10}\ (\text{UNDEVELOPED})}{.67 \times .684}$$

$$= \frac{1.45}{.67 \times .684} = 3.16 \ \frac{\text{CFS}}{\text{ACRE IMPERVIOUS}}$$

$$T = -25 + \sqrt{\frac{7087.5}{Q_0}} = -25 + \sqrt{\frac{7087.5}{3.16}}$$

$$= 22.37 \text{ mins.}$$

$$V_S = \frac{11340 \times T}{T+25} - 40 Q_0 T$$

$$= \frac{11340 \times 22.37}{22.37+25} - 40 \times 3.16 \times 22.37$$

$$= 5355 - 2828$$

$$= 2527 \ ft^3/\text{ACRE IMPERVIOUSNESS}$$

$$V_t = 2527 \times .67 \times .684 = 1158 \ ft^3$$

Therefore maximum volume of water stored in retention basin = $1158 \ ft^3$

Determination of Orifice Dimensions.

Allowable outflow = 1.45 cfs
Available head = 1.2 ft

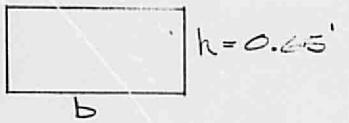
then

$$Q = 0.6\, a \sqrt{2gh}$$

$$a = \frac{Q}{.6\sqrt{2gh}} = \text{Area of orifice}$$

$$a = \frac{1.45}{.6\sqrt{2 \times 32.2 \times 1.2}} = 0.275 \text{ ft}^2$$

Assume rectangular orifice with height = 0.65 ft



then

$$b = \frac{A}{h} = \frac{0.275}{0.65} = .423 \text{ ft}$$

$$= 5.08 \text{ inches}$$

say 5 inches

DRAINAGE STUDY
FOR
BLOCKS 119-B, 120-D, 126-A & 127-B

Dale J. Bellamah's

PRINCESS JEANNE PARK

Prepared By: G.E.Paul,
N.M.P.E.& L.S.
#2544

Date: May 23, 1969

DRAINAGE STUDY,
BLOCKS 119-B, 120-D, 126-A & 127-B
DALE J. BELLAMAH'S
PRINCESS JEANNE PARK

INTRODUCTION :

The area under study was analyzed by this writer in a previous report dated "Feb. 7, 1969", entitled "REVISED DRAINAGE ANALYSIS E. ½ SEC. 21, T. 10 N., R. 4 E., N.M.P.M.". and incorporated those areas designated as 7, 8 and 9, and a portion of the area designated as 6 . In the present plat, Mildred St. has been shifted somewhat East of the location of the North-South street in area 9 of the original study and is now the sole North-South water-carrier whereas there were three such streets in the previous study. It will carry all runoff from Blocks 126-A and 127-B (excluding Lots 10 and 11 in 127-B) and will also carry all runoff from the 6.39-acre Dale Bellamah Park, which drains to Mildred Street via easement between Lots 22, 23, 24 of Block 127-B. Marquette Ave., the East-West street which separates Block 127-B from Blocks 120-D and 119-B remains much as it did on the February 7 study and will carry only the runoff from 11 lots in 127-B, 5 lots in 120-D and 6 lots in 119-B. The original plan called for a water-block on Marquette, approximately 80 feet West of and 1.5 feet higher than the West gutter line of Juan Tabo Blvd. This would assure that no water would enter this subdivision from external sources.

The forthcoming calculations are intended to show the revised drainage areas as they relate to this proposed development, and to show what flows may be expected to concentrate on Mildred St. and Marquette Ave. as the result of a maximum storm (100-year frequency, as required by Office of the City Engineer). They will also show the runoff from Dale Bellamah Park, and suggest a minimum slope and cross-section for the easement between lots, which will drain this park to Mildred Street.

CRITERIA:

Storm Frequency: .... 100 Years

Runoff Coefficient:... c = 0.50

Intensity:... Based on Duration, or overland flow time plus channel flow time to reach a designated "outlet" or point; in this instance being Marquette Ave. West of Mildred St. (Results taken from Sandia Conservancy District Intensity-Duration Curves for the Albuquerque Area...1954)

SAMPLE CALCULATION:

The proposed subdivision is superimposed in ink on the included contour map; as is the Public Park included in the subdivision.

DRAINAGE STUDY (Cont'd.)

Sample Calc. (cont'd.) :

The flow on the two streets platted in this subdivision is not critical, but the sizing of the drainage easement to take runoff out of Dale Bellamah Park and into Mildred St. between Lots 22, 23 and 24 of Block 127-B is critical; hence the complete sample calculation will show what flows may be anticipated, and a suggested easement section will be determined. Note: Flow across Dale Bellamah Park is all "sheet" type, hence the Nomograph in the Seelye "DESIGN" book, page 5-00 will be used for this determination.

From the "Rational" Formula, Q = Aci :

A = 6.391 Acres (as platted)

c = 0.50 (this figure is high for a supposed grass surface, but will be used regardless, in the event portions of the area later receive paving; as a safety factor).

i = Intensity in in./hr. based on duration of storm (in this case, overland flow time) of a 100-year frequency, from S.C.D. curves for the Albuquerque Area (1954).

Greatest length of overland flow: 755 ft.

Per cent slope of ground: 2.53

Character of ground: "Bare Soil"

From Seelye Nomograph, Inlet Concentration Time = 16.1 min.

From S.C.D. curves, for a 100-year storm with 16.1 min. duration, Intensity (i) = 4.35 in./hr.

$Q = Aci = 6.39 \cdot 0.50 \cdot 4.35 = 13.9$ cfs (max. antic. flow)

Sizing of drainage easement out of the park as follows:

Width of easement:... 10 feet
Slope of easement:... 0.0346
Suggested cross-section:...Trapezoidal; 8' bottom, 0.5' depth, 2:1 side-slopes;asphalt paved (2")

By Manning's Equation, $Q = \text{area} \cdot \frac{1.486}{n} \cdot R^{2/3} \cdot S^{\frac{1}{2}}$:

$Q = 4.5 \cdot \frac{1.486}{0.020} \cdot 0.579 \cdot 0.186 = 36.0$ cfs (capacity)

Since the carrying-capacity of the drainage easement is approx. 2.6 times greater than the maximum anticipated flow, it may be considered more than adequate.

Calculation of runoff on Mildred St. and on Marquette Ave.:

DRAINAGE STUDY (Cont'd.)

Area (1), Drainage to Marquette Ave.

A = 4.33 Ac.
c = 0.50
Longest overland flow = 120 ft. @ 2.5 % grade.
Ditch flow = 780 ft. @ 2.57% grade (Asphalt..level section).

Overland flow time = 10.0 min.

Ditch flow time = 4.5 min.

Total flow time = 14.5 min. = Duration.

For 100-year storm, 14.5 min. duration; Intensity (i) = 4.67 in./hr.

Q = Aci = 4.33 • 0.50 • 4.67 = 10.1 cfs

Area (2), Drainage to Mildred St.

A = 3.51 Ac.
c = 0.50
Longest overland flow = 120 ft. @ 2.4% grade.
Ditch flow = 730 ft. @ 1.645% grade (Asphalt..6" sidehill or less)

Overland flow time = 10.1 min.

Ditch flow time = 5.2 min.

Total flow time = 15.3 min. = Duration.

For 100-year storm, 15.3 min. duration; Intensity (i) = 4.59 in./hr.

Q = Aci = 3.51 • 0.50 • 4.59 = 8.05 cfs.

In addition, drainage from Area (3), Dale Bellamah Park, contributes 13.9 cfs to total runoff accumulating on Mildred St., for a total flow quantity of 21.95, say, 22.0 cfs on Mildred St. at the intersection with Marquette Ave.

Combined flows on Marquette Ave. = 10.1 + 22.0 = 32.1 cfs at the Westerly limits of this subdivision. Since the carrying-capacity of Marquette as a 32-ft. curb-to-curb street on a 2.57% grade, is 120 cfs, there is no danger of overflow on this street (nor any other street or easement in this subdivision) during peak runoff from a 100-year frequency storm.

DRAINAGE STUDY (Cont'd.)

CONCLUSIONS AND RECOMMENDATIONS:

From the preceding calculations, it may be concluded that the layout of Lots, streets and easements is satisfactory in all respects, concerning ability to move storm water through the project without damage to abutting property. As a general rule, it may also be concluded that it is unwise to locate any lot immediately across from a "Tee" intersection, unless the anticipated flow quantity and velocity are relatively small on the watercourse which forms the "leg" of the "tee", or unless such lot is graded high enough to prevent water which might jump the curbing from reaching floor level of the house or other building. In this case, velocities on Mildred St. are so low (around 2.5 ft./sec.) that Lots 19 and 20 in Block 120-D are in no danger of water jumping the curb on the South side of Marquette Ave. and causing any serious flooding. However, there is a very slim possibility that the driveway entrance to Lot 22, Block 126-A, if located directly opposite the walkway and drainage easement from the Park might take some water during a very heavy runoff. Therefore, the following recommendations are made:

1. In Lot 22, Block 126-A, locate the driveway entrance at the Southeast corner of the lot; not the Northeast corner.

2. A 1-ft. high curb should be constructed across the drainage easement out of Dale Bellamah Park, on the Park side, to reduce silting of the easement, itself, and to aid as an energy-dissipator for flows across the park.

3. A minimum 1-ft. high water-block, as proposed on the original study, is still deemed necessary on Marquette, just West of Juan Tabo Blvd., to keep runoff on Juan Tabo from entering this Subdivision. With the Storm Sewer on Juan Tabo, there is much less danger than when the original drainage plan was prepared in 1960, but this precautionary measure is still favored.

4. In keeping with the thinking concerning Marquette, it is also recommended that a dike be constructed along the East and North sides of Dale Bellamah Park, approximately 1 ft. higher than abutting curb line or natural ground, to keep external runoff water out of the Park and hence out of the subdivision. Such dike would require no more than a 2-ft. wide top, and 4:1 slopes back to natural ground or back of sidewalk.

George E. Paul

George E. Paul, N.M.P.E.& L.S.# 2544

Date: 5-23-69

REVISED DRAINAGE ANALYSIS
for: E.½, Sec. 21,
T.10 N., R.4 E., N.M.P.M.

G.E.Paul ..... N.M.P.E.&L.S.
2544

REVISED DRAINAGE ANALYSIS
for: E.½, Sec. 21,
T.10 N., R.4 E., N.M.P.M.

G.E.Paul ..... N.M.P.E.&L.S.
2544

CERTIFICATION

I certify that this report was prepared by me, that all criteria used, all calculations made and all results obtained are true and correct to the best of my knowledge and belief.

George E. Paul
George E. Paul

2-7-69
Date

(SEAL)

REVISED DRAINAGE ANALYSIS

E.½ Sec. 21, T. 10 N., R. 4 E., N.M.P.M.

Introduction:

The original study of this area was made in January of 1960; tentatively approved by the City of Albuquerque and a representative of a consulting engineering firm for the City, in March, 1960. It was re-approved in 1963.

However, with the adoption by the City in 1964 of a Master Plan of Drainage, it has become necessary to revise thinking as regards runoff coefficients used in the "Rational" Formula for runoff computation. This formula (Q= A x c x i or Q= A x i x r) allows for a number of different values to be introduced for the coefficient "c" or "r", ranging from 0.01 to 1.00, dependent upon the nature of the surface from which the runoff occurs, natural or man-made retention areas, etc.

In previous years, it was common practice to use 0.30 as a runoff coefficient for drainage areas in the East Heights. This was the case in this particular study. Since portions of this area have not yet been developed, and since the adopted Master Plan of Drainage calls for a coefficient of 0.50 to be used for runoff in residential areas, the City has asked for a revised study, using the higher value for the runoff coefficient.

An increase of 66.7% in the value of the coefficient will increase the corresponding value of "Q", the total anticipated runoff in cubic feet per second. The office of the City Engineer wishes to ascertain that these increased "Q" values will not show a greater expected runoff than can be carried within the confines of the streets in the proposed area to be developed.

The calculations on the following pages are intended to show that the proposed streets are able to contain and carry such flows as may be encountered from a 100-year frequency rainfall.

REVISED DRAINAGE ANALYSIS (cont'd.)

Criteria:

Basis of Computations: "Rational" Formula (Q= Aci)

Storm Frequency Used : 100- year

Determination of Drainage Area (A) : By Planimeter

Value of Runoff Coefficient (c) : 0.50

Determination of Rainfall Intensity (i) : Overland flow time by Nomograph (Seelye page 5-00)

Ditch Flow Time by Manning Formula, $V = \frac{1.486}{n} \cdot r^{2/3} \cdot s^{\frac{1}{2}}$

Intensity (Duration) in inches per hour obtained from Sandia Conservancy District curves for Albuquerque Area, 1954.

Sample Calculations:

Area (1) = 6.03 ac.
Longest overland flow = 130' with 2.8' fall, or 2.155% slope.
Character of ground: "Poor grass".
Then, by Nomograph (Seelye pg. 5-00), inlet conc. time = 10.5
Length of channel (street) = 930ft.
Slope of channel = 26'/930' = 0.0280 = "S".
Coefficient of roughness (n) for channel when paved: = 0.015
Channel (street) width = 32' with 8" curbs, giving cross-sect. area of 13.33 sq.ft. and wetted perimeter of 33.53 ft. when running full. Hydraulic Radius = 13.33/33.53 = 0.398 = "R".

Velocity in channel (By Manning) = $\frac{1.486}{0.015} \cdot 0.398^{2/3} \cdot 0.0280^{\frac{1}{2}}$

$= \frac{1.486}{0.015} \cdot 0.541 \cdot 0.1673 =$ 8.97 feet/ sec.

Channel time = $\frac{930'}{8.97 \cdot 60} =$ 1.73 min.

Total time (Duration) = 10.5 + 1.73 = 12.23 min.

From INTENSITY-DURATION CURVES (S.C.D. 1954), a 100-year frequency storm with 12.23 min. duration has intensity of 5.20"/hr.

Sample Calculations, cont'd.:

Then,

A = 6.03 acres
c = 0.50
i = 5.20 in./hr.

and Q = Aci ;

Therefore, total runoff from area (1) = 6.03 • 0.50 • 5.20

= 15.7 cu. ft./sec.

The following pages tabulate the runoff totals from each of the 17 areas indicated on the Drainage Map included with this report.

In computing these flows, the assumption is made that no water will enter the proposed development area from external sources. All streets running West from Juan Tabo Rd. (the Easterly Boundary of the study area) have a "water-block",or barrier in the planned paving grades, at least 1.5 feet higher than the gutter flowline elevations at corresponding locations on Juan Tabo Rd. With storm sewer and paving on Juan Tabo Rd.,runoff from external sources is virtually impossible.

REVISED DRAINAGE ANALYSIS (cont'd.)

Final Calculations and Tabulated Values of Runoff from the Respective Drainage Areas:

Area 1

A=6.03 Ac.
c=0.50
i=5.20"/hr.

Q = 6.03 • 0.50 • 5.20 = 15.7 cfs

Area 2

A=6.29 Ac.
c=0.50
i=4.90"/hr.

Q = 6.29 • 0.50 • 4.90 = 15.4 cfs

Area 3

A=10.21 Ac.
c=0.50
i=4.70"/hr.

Q = 10.21 • 0.50 • 4.70 = 24.0 cfs

Area 4

A=12.13 Ac.
c=0.50
i=4.65"/hr.

Q = 12.13 • 0.50 • 4.65 = 28.2 cfs

Area 5

A=13.82 Ac.
c=0.50
i=4.61"/hr.

Q = 13.82 • 0.50 • 4.61 = 31.8 cfs

Area 6

A=15.50 Ac.
c=0.50
i=4.32"/hr.

Q = 15.50 • 0.50 • 4.32 = 33.4 cfs

Area 7

A=1.82 Ac.
c=0.50
i=5.40"/hr.

Q = 1.82 • 0.50 • 5.40 = 4.9 cfs

REVISED DRAINAGE ANALYSIS (cont'd.)

Final Calculations and Tabulations...cont'd:

Area 8

A=4.54 Ac.
c=0.50
i=4.30"/hr.

Q = 4.54 • 0.50 • 4.30 = 9.8 cfs

Area 9

A=4.74 Ac.
c=0.50
i=3.88"/hr.

Q = 4.74 • 0.50 • 3.88 = 9.2 cfs

Area 10

A=5.86 Ac.
c=0.50
i=4.03"/hr.

Q = 5.86 • 0.50 • 4.03 = 11.8 cfs

Area 11

A=7.17 Ac.
c=0.50
i=3.64"/hr.

Q = 7.17 • 0.50 • 3.64 = 13.1 cfs

Area 12

A=9.07 Ac.
c=0.50
i=4.25"/hr.

Q = 9.07 • 0.50 • 4.25 = 19.2 cfs

Area 13

A=6.69 Ac.
c=0.50
i=4.90"/hr.

Q = 6.69 • 0.50 • 4.90 = 16.35cfs

Area 14

A=1.63 Ac.
c=0.50
i=5.03"/hr.

Q = 1.63 • 0.50 • 5.03 = 4.1 cfs

Area 15

A=5.77 Ac.
c=0.50
i=5.02"/hr.

Q = 5.77 • 0.50 • 5.02 = 14.45cfs

REVISED DRAINAGE ANALYSIS (cont'd.)

Final Calculations and Tabulations....cont'd:

Area 16

A=1.15 Ac.
c=0.50
i=4.42"/hr.

Q = 1.15 • 0.50 • 4.42 = 2.54 cfs

Area 17

A=3.61 Ac.
c=0.50
i=4.10"/hr.

Q = 3.61 • 0.50 • 4.10 = 7.40 cfs

Conclusions:

Based on the carrying capacities of a 32' curb-to-curb paved street at varying slopes, the runoff anticipated on all of these streets is far below the respective street-carrying capacities. The worst conditions are:

Street draining Areas 6,7,8,9,10 and 11 : Q (max.) = 82.2 cfs
Slope = 0.0160
Carrying Capacity (from Master Plan of DrainageTables) = 94.8 cfs

Street draining Areas 4,5, and 17 : Q (max.) = 67.4 cfs
Slope = 0.0181
Carrying Capacity (from Master Plan of Drainage Tables) = 100.5cfs

Hence, neither of the above "critical" streets are in danger of overflow, nor are any of the other proposed streets with lower anticipated runoffs, in any danger of flooding abutting property.

The new plat of "BLOCKS 107-B,120-C,126 & 127-A ... Dale J. Bellamah's PRINCESS JEANNE PARK" encompasses the approximate area identified in red as (11) on the accompanying drainage map in this report. The plat acreage is 7.23 as compared to 7.17 shown for Drainage Area (11). The slope of terrain and drainage characteristics are practically identical. Maximum runoff on Muriel Street will then be approximately 13.1 cfs . Muriel Street may have a grade as flat as 0.5% where it approaches Marquette Ave. on the plat,but even so, has a capacity of 53.0 cfs at that slope. All streets in the above study will safely accomodate runoff from a 100-year frequency storm.

George E. Paul- P.E.&L.S.#2544

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE February 2, 1981 REF. NO._____

TO: J. P. Fitzgerald, Assistant City Attorney

FROM: Richard S. Heller, City Engineer

K 21-02

SUBJECT: STATE HIGHWAY CONDEMNATION OF A PORTION OF TRACT A, PRINCESS JEANNE PARK ADDITION

At this time I am unable to address the affect of condemnation on the City's drainage easement on the subject site because to the best of my knowledge, there are no City drainage easements on the property. However, there is a berm located on the site that diverts flows away from the downstream residence.

Therefore, I will need to know the intercepted flows in quantified terms, before the City can agree the berm will no longer be needed. Mr. Aguirre, of my staff, has informed Mr. Lepic of these problems and requested more information.

If you need further information from me, please let me know.

RSH/tsl

cc: F.J. Aguirre, Asst. Hydrology Engineer
Bruno Conegliano, Asst. Hydrology Engineer

January 24, 1978

RECEIVED
JAN 3 1978
CITY ENGINEER

Mr. Bruno Conegliano
c/o City Engineer
400 Marquette Avenue, N.W.
Albuquerque, New Mexico 87102

Dear Mr. Conegliano:

Thank you very much for the opportunity to meet with you on Tuesday, January 24, 1978. As you requested, I am enclosing a zone atlas map referencing the property at 1721 Shirley, N.E. which we discussed during my visit.

Upon receipt of this letter, would you please draw up your written opinion as to whether the property in question exists within the flood zone or not: would you please address your opinion to:

Ms. Lynn Shea
c/o First Service Mortg. Corp.
6400 Uptown Blvd.,N.E. 87110

The property in question is a house located on Lot 15, Block 72, of Princess Jeanne Park Addition. Should it be your opinion this property is not in the specified flood zone, then the mortgage company can negotiate with the Federal Housing Authority in order to remove the insurance requirement for the new mortgagor.

Thank you again for your time, it was a pleasure to meet you.

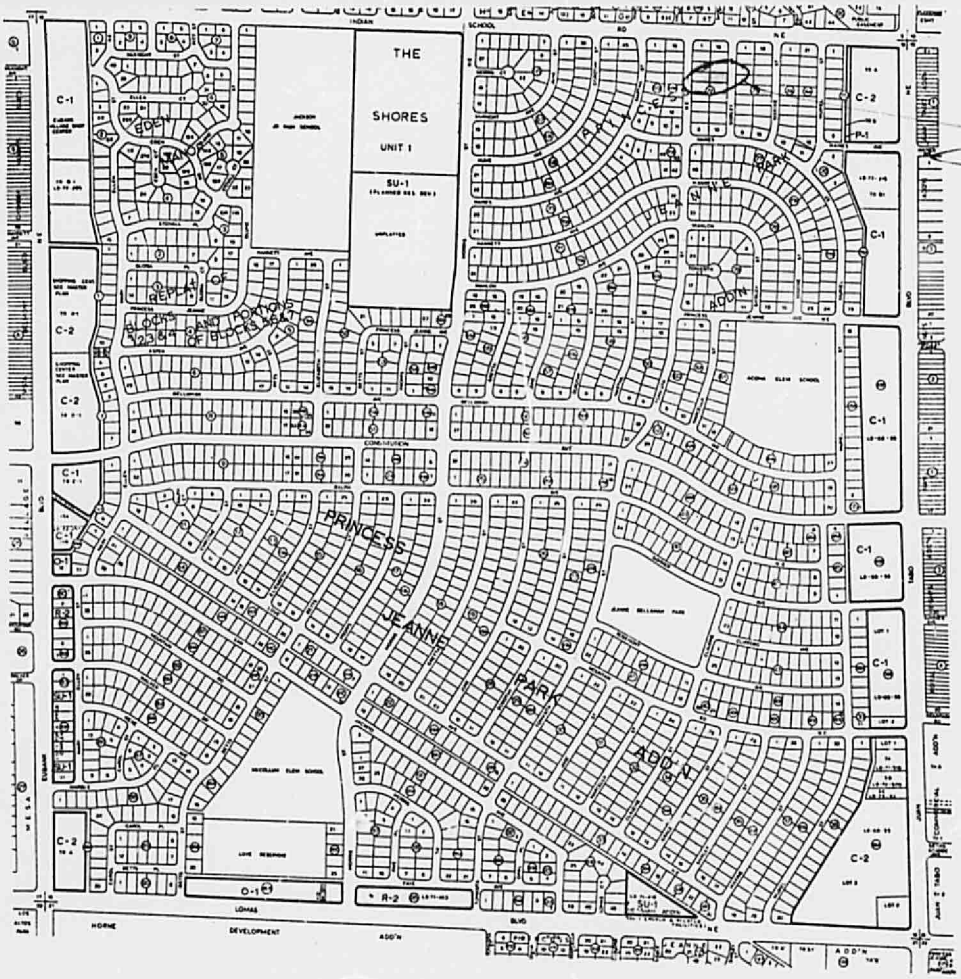
Cordially,

Richard Whiteside
Associate Broker

RW:ds
Enclosure

8421 OSUNA RD.,N.E., ALBUQUERQUE, NEW MEXICO 87111 (505) 292-2300

HG PICKARD
& ASSOC INC
REALTORS



Lot 15
Block 72
1721 Shirley NE

J-21-Z

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

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

November 25, 1977

K21-D2

Cottrell/Vaughan & Assoc.,Inc.
4125 Carlisle NE
Albuquerque, New Mexico

RE: Drainage for Tract C-2 Princess Jeanne Park Addition

Gentlemen:

A complaint was received by this office regarding the runoff that was carried by the alley on the west side of the SKAGGS development located at the intersection of Juan Tabo & Lomas.

Even though the site plan included in the drainage report has the notation "Provide opening in curb or wall at low point of adjacent property to allow water to pass through" there are no details as to the exact location of the mentioned openings. My concern is that the alley behind lots 1 through 3 D of Princess Jeanne Park Addition be provided with positive drainage and that the runoff be not blocked or allowed to accumulate against the garden walls to the west.

Another item that requires review is the proposed planting area on the north west boundary of the property. The garden walls fencing the residential area to the west have openings and particular attention needs to be paid to the possibility of surface or irrigation runoff collecting against said garden walls. A positive means of runoff collection needs to be provided since the contours shown on the site plan indicate up to 6.0 ft. of drop for the plantinting area, sloping towards the garden walls.

Very truly yours,

Bruno Conegliano

Bruno Conegliano
Asst. City Engineer - Hydrology

BC/gm

cc; V.M. Kimmick
Drainage file

CITY OF ALBUQUERQUE

Albuquerque, New Mexico

From the office of....

ROBERT W. BLAIR
Chief Construction Inspector

TO: Frank J. Bailey 2-24-69

SUBJECT: Restudy of Drainage

Study for Princess Jeanne Park, Blks. 107-B, 120-C 126 and 127-A as revised.

After study of the drainage revision as submitted by Ralph K. Hicks, the above is approved. It is noted that consideration to a much larger rain intensity is used for computation in the rational flow formula and yet the streets inscribed by the area will handle the resulting flows.

Robert W. Blair

ROBERT W. BLAIR
Chief Construction Inspector

RWB/ms

cc: William T. Stevens
File

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

ALBUQUERQUE NEW MEXICO 1706

Planning Department Box 1293 Albuquerque, New Mexico 87103

Telephone 243-8661 ruben d. ramirez, Director

January 24, 1969

Mr. Ralph E. Hicks
600 Coal SW
Albuquerque, New Mexico

Dear Mr. Hicks:

At the January 20 meeting of the City Planning Commission, the following action was taken on the proposed plat of Blocks 107-B, 120-C, 126 & 127-A, Dale J. Bellamah's Princess Jeanne Park Addition (S-1053-5):

> BE IT RESOLVED THAT S-1053-5 be recommended to the City Commission for approval subject to securing all required signatures and completion of the 10-year tax search certificate on the plat.

This matter is to be considered by the City Commission on January 27.

Sincerely,

George L. Carruthers

George L. Carruthers, Chief
Current Planning Division

C:mmw

cc: Dale J. Bellamah, 1529 Eubank NE

HYDROLOGY K21/D2 2 PLANS

K21/D2

2 Plans

Princess Jeannie

Detention Basin Design

from "A Simple Method of Detention Basin Design" by G. Prijanaikin and H. W. Hagen, WATER & SEWAGE WORKS December, 1973. (See above publication for definition of terms used in this section of calculations.)

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

$$V_n = \frac{11340\,T}{T+25}$$

$$V_s = \frac{11340\,T}{T+25} - 40\,Q_o\,T$$

$$T = -25 + \sqrt{\frac{7874.5}{Q_o}}$$

for orifice outlet

Composite runoff coefficient for developed state:

$$C = \frac{C_1 \times A_1 + C_2 \times A_2 + C_3 \times A_3 \ldots}{A_1 + A_2 + A_3 \ldots}$$

for roof runoff $Q = CIA = 0.18$ cfs from earlier design.

then $CA_{roof} = \frac{0.18}{5.4} = 0.033$

$$C_{composite} = \frac{0.033 + (.43 \times .9) + (.02 \times .9) + (.05 \times .4)}{0.67}$$

$$= 0.684$$

Wheaton Center

$$Q_0 = \frac{\text{Acreage} \times \text{Runoff coefficient}}{}$$

$$= \frac{Q_{100}\ (\text{undeveloped})}{.67 \times .684}$$

$$= \frac{1.45}{.67 \times .684} = 3.16 \ \frac{\text{cfs}}{\text{Acre impervious}}$$

$$T = -25 + \sqrt{\frac{7087.5}{Q_0}} = -25 + \sqrt{\frac{7087.5}{3.16}}$$

$$= 22.37 \text{ mins.}$$

$$V_s = \frac{11340 \times T}{T+25} - 40 Q_0 T$$

$$= \frac{11340 \times 22.37}{22.37+25} - 40 \times 3.16 \times 22.37$$

$$= 5355 - 2828$$

$$= 2527 \ ft^3/\text{acre impervious}$$

$$V_t = 2527 \times .67 \times .684 = 1158 \ ft^3$$

Therefore minimum volume of water storage in retention basin = 1158 ft^3

Determination of Orifice Dimensions.

Allowable outflow = 1.45 cfs
Available head = 1.2 ft

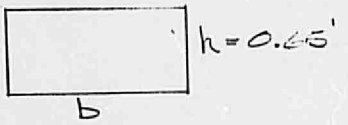
then

$$Q = 0.6\, a \sqrt{2gh}$$

$$a = \frac{Q}{.6\sqrt{2gh}} = \text{Area of orifice}$$

$$a = \frac{1.45}{.6\sqrt{2 \times 32.2 \times 1.2}} = 0.275 \text{ ft}^2$$

Assume rectangular orifice with height = 0.65 ft



then

$$b = \frac{A}{h} = \frac{0.275}{0.65} = .423 \text{ ft}$$

$$= 5.08 \text{ inches}$$

say 5 inches

DRAINAGE STUDY
FOR
BLOCKS 119-B, 120-D, 126-A & 127-B

Dale J. Bellamah's

PRINCESS JEANNE PARK

Prepared By: G.E.Paul,
N.M.P.E.& L.S.
#2544

Date: May 23, 1969

DRAINAGE STUDY,
BLOCKS 119-B, 120-D, 126-A & 127-B
DALE J. BELLAMAH'S
PRINCESS JEANNE PARK

INTRODUCTION :

The area under study was analyzed by this writer in a previous report dated "Feb. 7, 1969", entitled "REVISED DRAINAGE ANALYSIS E. ½ SEC. 21, T. 10 N., R. 4 E., N.M.P.M.". and incorporated those areas designated as 7, 8 and 9, and a portion of the area designated as 6 . In the present plat, Mildred St. has been shifted somewhat East of the location of the North-South street in area 9 of the original study and is now the sole North-South water-carrier whereas there were three such streets in the previous study. It will carry all runoff from Blocks 126-A and 127-B (excluding Lots 10 and 11 in 127-B) and will also carry all runoff from the 6.39-acre Dale Bellamah Park, which drains to Mildred Street via easement between Lots 22, 23, 24 of Block 127-B. Marquette Ave., the East-West street which separates Block 127-B from Blocks 120-D and 119-B remains much as it did on the February 7 study and will carry only the runoff from 11 lots in 127-B, 5 lots in 120-D and 6 lots in 119-B. The original plan called for a water-block on Marquette, approximately 80 feet West of and 1.5 feet higher than the West gutter line of Juan Tabo Blvd. This would assure that no water would enter this subdivision from external sources.

The forthcoming calculations are intended to show the revised drainage areas as they relate to this proposed development, and to show what flows may be expected to concentrate on Mildred St. and Marquette Ave. as the result of a maximum storm (100-year frequency, as required by Office of the City Engineer). They will also show the runoff from Dale Bellamah Park, and suggest a minimum slope and cross-section for the easement between lots, which will drain this park to Mildred Street.

CRITERIA:

Storm Frequency: .... 100 Years

Runoff Coefficient:... c = 0.50

Intensity:... Based on Duration, or overland flow time plus channel flow time to reach a designated "outlet" or point; in this instance being Marquette Ave. West of Mildred St. (Results taken from Sandia Conservancy District Intensity-Duration Curves for the Albuquerque Area...1954)

SAMPLE CALCULATION:

The proposed subdivision is superimposed in ink on the included contour map; as is the Public Park included in the subdivision.

DRAINAGE STUDY (Cont'd.)

Sample Calc. (cont'd.) :

The flow on the two streets platted in this subdivision is not critical, but the sizing of the drainage easement to take runoff out of Dale Bellamah Park and into Mildred St. between Lots 22, 23 and 24 of Block 127-B is critical; hence the complete sample calculation will show what flows may be anticipated, and a suggested easement section will be determined. Note: Flow across Dale Bellamah Park is all "sheet" type, hence the Nomograph in the Seelye "DESIGN" book, page 5-00 will be used for this determination.

From the "Rational" Formula, Q = Aci :

A = 6.391 Acres (as platted)

c = 0.50 (this figure is high for a supposed grass surface, but will be used regardless, in the event portions of the area later receive paving; as a safety factor).

i = Intensity in in./hr. based on duration of storm (in this case, overland flow time) of a 100-year frequency, from S.C.D. curves for the Albuquerque Area (1954).

Greatest length of overland flow: 755 ft.

Per cent slope of ground: 2.53

Character of ground: "Bare Soil"

From Seelye Nomograph, Inlet Concentration Time = 16.1 min.

From S.C.D. curves, for a 100-year storm with 16.1 min. duration, Intensity (i) = 4.35 in./hr.

$Q = Aci = 6.39 \cdot 0.50 \cdot 4.35 =$ 13.9 cfs (max. antic. flow)

Sizing of drainage easement out of the park as follows:

Width of easement:... 10 feet
Slope of easement:... 0.0346
Suggested cross-section:...Trapezoidal; 8' bottom, 0.5' depth, 2:1 side-slopes;asphalt paved (2")

By Manning's Equation, $Q = \text{area} \cdot \frac{1.486}{n} \cdot R^{2/3} \cdot S^{\frac{1}{2}}$:

$Q = 4.5 \cdot \frac{1.486}{0.020} \cdot 0.579 \cdot 0.186 =$ 36.0 cfs (capacity)

Since the carrying-capacity of the drainage easement is approx. 2.6 times greater than the maximum anticipated flow, it may be considered more than adequate.

Calculation of runoff on Mildred St. and on Marquette Ave.:

DRAINAGE STUDY (Cont'd.)

Area (1), Drainage to Marquette Ave.

A = 4.33 Ac.
c = 0.50
Longest overland flow = 120 ft. @ 2.5 % grade.
Ditch flow = 780 ft. @ 2.57% grade (Asphalt..level section).

Overland flow time = 10.0 min.

Ditch flow time = 4.5 min.

Total flow time = 14.5 min. = Duration.

For 100-year storm, 14.5 min. duration; Intensity (i) = 4.67 in./hr.

Q = Aci = 4.33 • 0.50 • 4.67 = 10.1 cfs

Area (2), Drainage to Mildred St.

A = 3.51 Ac.
c = 0.50
Longest overland flow = 120 ft. @ 2.4% grade.
Ditch flow = 730 ft. @ 1.645% grade (Asphalt..6" sidehill or less)

Overland flow time = 10.1 min.

Ditch flow time = 5.2 min.

Total flow time = 15.3 min. = Duration.

For 100-year storm, 15.3 min. duration; Intensity (i) = 4.59 in./hr.

Q = Aci = 3.51 • 0.50 • 4.59 = 8.05 cfs.

In addition, drainage from Area (3), Dale Bellamah Park, contributes 13.9 cfs to total runoff accumulating on Mildred St., for a total flow quantity of 21.95, say, 22.0 cfs on Mildred St. at the intersection with Marquette Ave.

Combined flows on Marquette Ave. = 10.1 + 22.0 = 32.1 cfs at the Westerly limits of this subdivision. Since the carrying-capacity of Marquette as a 32-ft. curb-to-curb street on a 2.57% grade, is 120 cfs, there is no danger of overflow on this street (nor any other street or easement in this subdivision) during peak runoff from a 100-year frequency storm.

DRAINAGE STUDY (Cont'd.)

CONCLUSIONS AND RECOMMENDATIONS:

From the preceding calculations, it may be concluded that the layout of Lots, streets and easements is satisfactory in all respects, concerning ability to move storm water through the project without damage to abutting property. As a general rule, it may also be concluded that it is unwise to locate any lot immediately across from a "Tee" intersection, unless the anticipated flow quantity and velocity are relatively small on the watercourse which forms the "leg" of the "tee", or unless such lot is graded high enough to prevent water which might jump the curbing from reaching floor level of the house or other building. In this case, velocities on Mildred St. are so low (around 2.5 ft./sec.) that Lots 19 and 20 in Block 120-D are in no danger of water jumping the curb on the South side of Marquette Ave. and causing any serious flooding. However, there is a very slim possibility that the driveway entrance to Lot 22, Block 126-A, if located directly opposite the walkway and drainage easement from the Park might take some water during a very heavy runoff. Therefore, the following recommendations are made:

1. In Lot 22, Block 126-A, locate the driveway entrance at the Southeast corner of the lot; <u>not</u> the Northeast corner.

2. A 1-ft. high curb should be constructed across the drainage easement out of Dale Bellamah Park, on the Park side, to reduce silting of the easement, itself, and to aid as an energy-dissipator for flows across the park.

3. A minimum 1-ft. high water-block, as proposed on the original study, is still deemed necessary on Marquette, just West of Juan Tabo Blvd., to keep runoff on Juan Tabo from entering this Subdivision. With the Storm Sewer on Juan Tabo, there is much less danger than when the original drainage plan was prepared in 1960, but this precautionary measure is still favored.

4. In keeping with the thinking concerning Marquette, it is also recommended that a dike be constructed along the East and North sides of Dale Bellamah Park, approximately 1 ft. higher than abutting curb line or natural ground, to keep external runoff water out of the Park and hence out of the subdivision. Such dike would require no more than a 2-ft. wide top, and 4:1 slopes back to natural ground or back of sidewalk.

George E. Paul

George E. Paul, N.M.P.E.& L.S.# 2544

Date: 5-23-69

REVISED DRAINAGE ANALYSIS
for: E.½, Sec. 21,
T.10 N., R.4 E., N.M.P.M.

G.E.Paul ..... N.M.P.E.&L.S.
2544

REVISED DRAINAGE ANALYSIS
for: E.½, Sec. 21,
T.10 N., R.4 E., N.M.P.M.

G.E.Paul ..... N.M.P.E.&L.S.
2544

CERTIFICATION

I certify that this report was prepared by me, that all criteria used, all calculations made and all results obtained are true and correct to the best of my knowledge and belief.

George E. Paul
George E. Paul

(SEAL)

2-7-69
Date

REVISED DRAINAGE ANALYSIS

E.½ Sec. 21, T. 10 N., R. 4 E., N.M.P.M.

Introduction:

The original study of this area was made in January of 1960; tentatively approved by the City of Albuquerque and a representative of a consulting engineering firm for the City, in March, 1960. It was re-approved in 1963.

However, with the adoption by the City in 1964 of a Master Plan of Drainage, it has become necessary to revise thinking as regards runoff coefficients used in the "Rational" Formula for runoff computation. This formula (Q= A x c x i or Q= A x i x r) allows for a number of different values to be introduced for the coefficient "c" or "r", ranging from 0.01 to 1.00, dependent upon the nature of the surface from which the runoff occurs, natural or man-made retention areas, etc.

In previous years, it was common practice to use 0.30 as a runoff coefficient for drainage areas in the East Heights. This was the case in this particular study. Since portions of this area have not yet been developed, and since the adopted Master Plan of Drainage calls for a coefficient of 0.50 to be used for runoff in residential areas, the City has asked for a revised study, using the higher value for the runoff coefficient.

An increase of 66.7% in the value of the coefficient will increase the corresponding value of "Q", the total anticipated runoff in cubic feet per second. The office of the City Engineer wishes to ascertain that these increased "Q" values will not show a greater expected runoff than can be carried within the confines of the streets in the proposed area to be developed.

The calculations on the following pages are intended to show that the proposed streets are able to contain and carry such flows as may be encountered from a 100-year frequency rainfall.

REVISED DRAINAGE ANALYSIS (cont'd.)

Criteria:

Basis of Computations: "Rational" Formula (Q= Aci)

Storm Frequency Used : 100- year

Determination of Drainage Area (A) : By Planimeter

Value of Runoff Coefficient (c) : 0.50

Determination of Rainfall Intensity (i) : Overland flow time by Nomograph (Seelye page 5-00)

Ditch Flow Time by Manning Formula, $V = \frac{1.486}{n} \cdot r^{2/3} \cdot s^{\frac{1}{2}}$

Intensity (Duration) in inches per hour obtained from Sandia Conservancy District curves for Albuquerque Area, 1954.

Sample Calculations:

Area (1) = 6.03 ac.
Longest overland flow = 130' with 2.8' fall, or 2.155% slope.
Character of ground: "Poor grass".
Then, by Nomograph (Seelye pg. 5-00), inlet conc. time = 10.5
Length of channel (street) = 930ft.
Slope of channel = 26'/930' = 0.0280 = "S".
Coefficient of roughness (n) for channel when paved: = 0.015
Channel (street) width = 32' with 8" curbs, giving cross-sect. area of 13.33 sq.ft. and wetted perimeter of 33.53 ft. when running full. Hydraulic Radius = 13.33/33.53 = 0.398 = "R".

Velocity in channel (By Manning) $= \frac{1.486}{0.015} \cdot 0.398^{2/3} \cdot 0.0280^{\frac{1}{2}}$

$= \frac{1.486}{0.015} \cdot 0.541 \cdot 0.1673 =$ 8.97 feet/ sec.

Channel time $= \frac{930'}{8.97 \cdot 60} =$ 1.73 min.

Total time (Duration) = 10.5 + 1.73 = 12.23 min.

From INTENSITY-DURATION CURVES (S.C.D. 1954), a 100-year frequency storm with 12.23 min. duration has intensity of 5.20"/hr.

Sample Calculations, cont'd.:

Then,

A = 6.03 acres
c = 0.50
i = 5.20 in./hr.

and Q = Aci ;

Therefore, total runoff from area (1) = 6.03 • 0.50 • 5.20

= 15.7 cu. ft./sec.

The following pages tabulate the runoff totals from each of the 17 areas indicated on the Drainage Map included with this report.

In computing these flows, the assumption is made that no water will enter the proposed development area from external sources. All streets running West from Juan Tabo Rd. (the Easterly Boundary of the study area) have a "water-block",or barrier in the planned paving grades, at least 1.5 feet higher than the gutter flowline elevations at corresponding locations on Juan Tabo Rd. With storm sewer and paving on Juan Tabo Rd.,runoff from external sources is virtually impossible.

REVISED DRAINAGE ANALYSIS (cont'd.)

Final Calculations and Tabulated Values of Runoff from the Respective Drainage Areas:

Area 1

A=6.03 Ac.
c=0.50
i=5.20"/hr.

Q = 6.03 • 0.50 • 5.20 = 15.7 cfs

Area 2

A=6.29 Ac.
c=0.50
i=4.90"/hr.

Q = 6.29 • 0.50 • 4.90 = 15.4 cfs

Area 3

A=10.21 Ac.
c=0.50
i=4.70"/hr.

Q = 10.21 • 0.50 • 4.70 = 24.0 cfs

Area 4

A=12.13 Ac.
c=0.50
i=4.65"/hr.

Q = 12.13 • 0.50 • 4.65 = 28.2 cfs

Area 5

A=13.82 Ac.
c=0.50
i=4.61"/hr.

Q = 13.82 • 0.50 • 4.61 = 31.8 cfs

Area 6

A=15.50 Ac.
c=0.50
i=4.32"/hr.

Q = 15.50 • 0.50 • 4.32 = 33.4 cfs

Area 7

A=1.82 Ac.
c=0.50
i=5.40"/hr.

Q = 1.82 • 0.50 • 5.40 = 4.9 cfs

REVISED DRAINAGE ANALYSIS (cont'd.)

Final Calculations and Tabulations...cont'd:

Area 8

A=4.54 Ac.
c=0.50
i=4.30"/hr.

Q = 4.54 • 0.50 • 4.30 = 9.8 cfs

Area 9

A=4.74 Ac.
c=0.50
i=3.88"/hr.

Q = 4.74 • 0.50 • 3.88 = 9.2 cfs

Area 10

A=5.86 Ac.
c=0.50
i=4.03"/hr.

Q = 5.86 • 0.50 • 4.03 = 11.8 cfs

Area 11

A=7.17 Ac.
c=0.50
i=3.64"/hr.

Q = 7.17 • 0.50 • 3.64 = 13.1 cfs

Area 12

A=9.07 Ac.
c=0.50
i=4.25"/hr.

Q = 9.07 • 0.50 • 4.25 = 19.2 cfs

Area 13

A=6.69 Ac.
c=0.50
i=4.90"/hr.

Q = 6.69 • 0.50 • 4.90 = 16.35cfs

Area 14

A=1.63 Ac.
c=0.50
i=5.03"/hr.

Q = 1.63 • 0.50 • 5.03 = 4.1 cfs

Area 15

A=5.77 Ac.
c=0.50
i=5.02"/hr.

Q = 5.77 • 0.50 • 5.02 = 14.45cfs

REVISED DRAINAGE ANALYSIS (cont'd.)

Final Calculations and Tabulations....cont'd:

Area 16

A=1.15 Ac.
c=0.50
i=4.42"/hr.

$Q = 1.15 \cdot 0.50 \cdot 4.42$ = 2.54 cfs

Area 17

A=3.61 Ac.
c=0.50
i=4.10"/hr.

$Q = 3.61 \cdot 0.50 \cdot 4.10$ = 7.40 cfs

Conclusions:

Based on the carrying capacities of a 32' curb-to-curb paved street at varying slopes, the runoff anticipated on all of these streets is far below the respective street-carrying capacities. The worst conditions are:

Street draining Areas 6,7,8,9,10 and 11 : Q (max.) = 82.2 cfs
Slope = 0.0160

Carrying Capacity (from Master Plan of Drainage Tables) = 94.8 cfs

Street draining Areas 4,5, and 17 : Q (max.) = 67.4 cfs
Slope = 0.0181

Carrying Capacity (from Master Plan of Drainage Tables) = 100.5cfs

Hence, neither of the above "critical" streets are in danger of overflow, nor are any of the other proposed streets with lower anticipated runoffs, in any danger of flooding abutting property.

The new plat of "BLOCKS 107-B,120-C,126 & 127-A ... Dale J. Bellamah's PRINCESS JEANNE PARK" encompasses the approximate area identified in red as (11) on the accompanying drainage map in this report. The plat acreage is 7.23 as compared to 7.17 shown for Drainage Area (11). The slope of terrain and drainage characteristics are practically identical. Maximum runoff on Muriel Street will then be approximately 13.1 cfs . Muriel Street may have a grade as flat as 0.5% where it approaches Marquette Ave. on the plat, but even so, has a capacity of 53.0 cfs at that slope. All streets in the above study will safely accomodate runoff from a 100-year frequency storm.

GEPaul

George E. Paul- P.E.&L.S.#2544

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE February 2, 1981 REF. NO._____

K 21-02

TO: J. P. Fitzgerald, Assistant City Attorney

FROM: Richard S. Heller, City Engineer

SUBJECT: STATE HIGHWAY CONDEMNATION OF A PORTION OF TRACT A, PRINCESS JEANNE PARK ADDITION

At this time I am unable to address the affect of condemnation on the City's drainage easement on the subject site because to the best of my knowledge, there are no City drainage easements on the property. However, there is a berm located on the site that diverts flows away from the downstream residence.

Therefore, I will need to know the intercepted flows in quantified terms, before the City can agree the berm will no longer be needed. Mr. Aguirre, of my staff, has informed Mr. Lepic of these problems and requested more information.

If you need further information from me, please let me know.

RSH/tsl

cc: F.J. Aguirre, Asst. Hydrology Engineer
Bruno Conegliano, Asst. Hydrology Engineer

January 24, 1978

RECEIVED
JAN 3 1978
CITY ENGINEER

Mr. Bruno Conegliano
c/o City Engineer
400 Marquette Avenue, N.W.
Albuquerque, New Mexico 87102

Dear Mr. Conegliano:

Thank you very much for the opportunity to meet with you on Tuesday, January 24, 1978. As you requested, I am enclosing a zone atlas map referencing the property at 1721 Shirley, N.E. which we discussed during my visit.

Upon receipt of this letter, would you please draw up your written opinion as to whether the property in question exists within the flood zone or not: would you please address your opinion to:

Ms. Lynn Shea
c/o First Service Mortg. Corp.
6400 Uptown Blvd.,N.E. 87110

The property in question is a house located on Lot 15, Block 72, of Princess Jeanne Park Addition. Should it be your opinion this property is not in the specified flood zone, then the mortgage company can negotiate with the Federal Housing Authority in order to remove the insurance requirement for the new mortgagor.

Thank you again for your time, it was a pleasure to meet you.

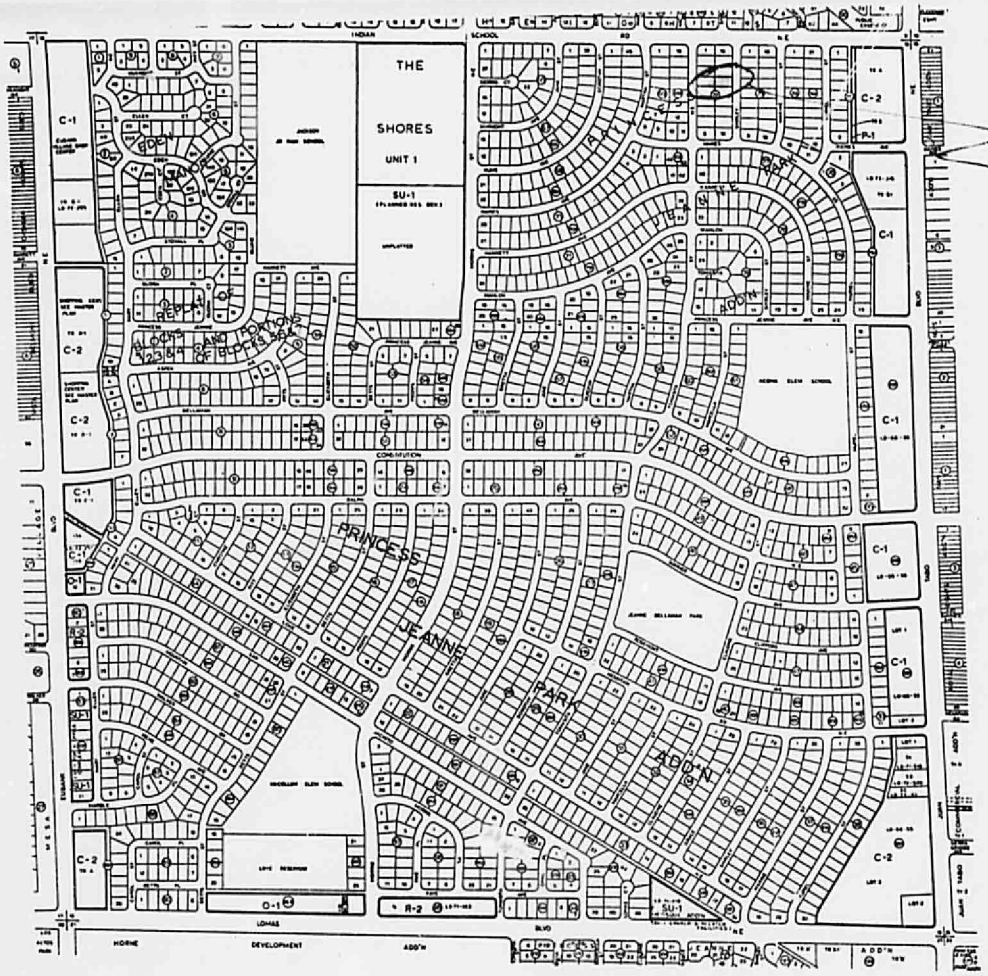
Cordially,

Richard Whiteside
Associate Broker

RW:ds
Enclosure

8421 OSUNA RD.,N.E., ALBUQUERQUE, NEW MEXICO 87111 (505) 292-2300

HG PICKARD
& ASSOC INC
REALTORS



Lot is
Block 72
1721 Shirley NE

J-21-Z

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

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

November 25, 1977

K21-D2

Cottrell/Vaughan & Assoc.,Inc.
4125 Carlisle NE
Albuquerque, New Mexico

RE: Drainage for Tract C-2 Princess Jeanne Park Addition

Gentlemen:

A complaint was received by this office regarding the runoff that was carried by the alley on the west side of the SKAGGS development located at the intersection of Juan Tabo & Lomas.

Even though the site plan included in the drainage report has the notation "Provide opening in curb or wall at low point of adjacent property to allow water to pass through" there are no details as to the exact location of the mentioned openings. My concern is that the alley behind lots 1 through 3 D of Princess Jeanne Park Addition be provided with positive drainage and that the runoff be not blocked or allowed to accumulate against the garden walls to the west.

Another item that requires review is the proposed planting area on the north west boundary of the property. The garden walls fencing the residential area to the west have openings and particular attention needs to be paid to the possibility of surface or irrigation runoff collecting against said garden walls. A positive means of runoff collection needs to be provided since the contours shown on the site plan indicate up to 6.0 ft. of drop for the plantinting area, sloping towards the garden walls.

Very truly yours,

Bruno Conegliano

Bruno Conegliano
Asst. City Engineer - Hydrology

BC/gm

cc; V.M. Kimmick
Drainage file

CITY OF ALBUQUERQUE
Albuquerque, New Mexico

From the office of . . . .
ROBERT W. BLAIR
Chief Construction Inspector

2-24-69

TO: Frank J. Bailey

SUBJECT: Restudy of Drainage

Study for Princess Jeanne Park, Blks. 107-B, 120-C 126 and 127-A as revised.

After study of the drainage revision as submitted by Ralph K. Hicks, the above is approved. It is noted that consideration to a much larger rain intensity is used for computation in the rational flow formula and yet the streets inscribed by the area will handle the resulting flows.

Robert W. Blair
ROBERT W. BLAIR
Chief Construction Inspector

RWB/ms

cc: William T. Stevens
File

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

ALBUQUERQUE NEW MEXICO 1706

Planning Department Box 1293 Albuquerque, New Mexico 87103

Telephone 243-8661 ruben d. ramirez, Director

January 24, 1969

Mr. Ralph E. Hicks
[illegible] Coal SW
Albuquerque, New Mexico

Dear Mr. Hicks:

At the January 23 meeting of the City Planning Commission, the following action was taken on the proposed plat of Blocks 107-B, 120-C, 126 & 127-A, Dale J. Bellamah's Princess Jeanne Park Addition (S-1053-5):

> BE IT RESOLVED THAT S-1053-5 be recommended to the City Commission for approval subject to securing all required signatures and completion of the 10-year tax search certificate on the plat.

This matter is to be considered by the City Commission on January 27.

Sincerely,

George L. Carruthers

George L. Carruthers, Chief
Current Planning Division

C:[illegible]

cc: Dale J. Bellamah, 1519 Eubank NE