L22/D3

3 PLANS

jose luis yguado & associates
117 QUINCY NORTHEAST | ALBUQUERQUE, NEW MEXICO | 255-5593
LANDSCAPE
ARCHITECTS
CITY AND
REGIONAL
PLANNERS

L22/03

October 13, 1964

The following is a report on storm drainage provisions on a proposed subdivision South of Central Avenue, and West of Four Hills Rd., N.E. The drainage area above the subdivision is the area between the East boundary of Tract C and the proposed Loop Expressway. The drainage areas North and East of this area will drain into Tijeras Arroyo.

The criteria used for analyzing the storm runoff in this report was computed by the Rational Formula Q = AIR.

Q = Runoff quantity in Acre Inches per hour or cubic feet per second
A = Contributing Area in Acres
I = Intensity in inches per hour for a duration equal to the time of accumulation (duration) in minutes. (4.2 was used)
R = Runoff coefficient. (0.45 for all Tracts was used except Tract A and B. 0.80 was used for Tract A and B).

Runoff of water accumulated in the drainage area east of the proposed subdivision as a result of a storm similar to the storm of August 10, 1963, is expected to reach a peak of as much as 22.68 cfs. This flow will be concentrated at Point 1 and Point 2 as outlined on the attached print. 17.01 cfs will concentrate at Point 1 and be allowed to flow into Cochiti Rd., S.E., and follow the path indicated. A 5-foot drainage easement should be provided at Point 2. Additional runoff is expected to accumulate North of Cochiti Rd., S.E., and can also be allowed to flow into Cochiti Rd. and Wenonah Pl., S.E. Additional runoff is also

expected to accumulate in Tract C & L. This accumulation, when added to the amounts introduced from the drainage area N.E. of Tract L (5.67 cfs), can be allowed to flow into Wenonah Pl. S.E. and follow the path indicated. Entrance lanes to Tract B should be so constructed that water flowing West on Cochiti Rd. and South on Wenonah Pl. will not enter at any point into Tract B.

Runoff of water accumulated in Tract B can also be expected to reach a peak of about 86.88 cfs., within the entire development, and is expected to be divided into about 26.06 cfs at Point 3 and 60.82 cfs. at Point 4. Runoff at Point 3 can be allowed to flow into Central Avenue, and runoff at Point 4 can be allowed to enter Cochiti Rd., N. of Tract A, and follow the path as indicated. Anticipated development in Tract B will be of a type that grading will have to allow the flow of water to pass at Point 3 and Point 4.

Additional runoff accumulated in Tract A, and N. of Tract A, and runoff going N. on Western Skies Dr., will be expected to pass at Point 5 and reach a peak of about 68.33 cfs.

Additional accumulation throughout the subdivision will reach a peak of about 138.93 cfs, including amounts introduced from above the subdivision. It will be divided into 4 outlets. 68.33 cfs will pass at Point 5 as aforementioned, 28.74 cfs will pass at Point 6, 1.68 cfs will pass at Point 7 and 40.18 cfs will

pass at Point 8.

The Master Plan of Drainage by Gordon Herkenhoff & Associates, indicates a capacity of 105 cfs. for a 32-foot street with 6-inch crown at center line or 6-inch sidehill with now crown and having a 2% slope. The proposed streets within the subdivision will more than suffice for the amounts indicated.

Phil Garcia
Assistant Planner
JOSE LUIS YGUADO & ASSOCIATES

Note: The drainage area East of the subdivision was calculated as 11.51 acres.

CITY OF ALBUQUERQUE
Albuquerque, New Mexico

City Hall
P.O. Box 1293
842-7441

From: FRANK J. BAILEY
Asst. City Engineer—Design
Date: _____

☐ Note & See Me
☐ Note & Correct as Indicated
☐ Handle as Indicated
☐ For Your Information

Fred

9/28/71
SG-54-71

Please have these
notes plotted roughly
for a proof that we cannot
vacate the Easement west of
Western Hills. as soon as
possible.

Frank

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ENGINEERING
CORPORATION

Professional Consultants

3820 ACADEMY PARKWAY, NORTH • ALBUQUERQUE, NEW MEXICO 87109 • PHONE (505) 345-8371

February 19, 1979

20-07

Mr. Bruno Congeliano
Assistant City Engineer-Hydrology
P.O. Box 1293
Albuquerque, NM 87103

Dear Bruno:

Submitted herewith is proposed drainage plan for a 7-Eleven store site located at Central and Western Skies Drive.

The Flood Hazard Boundary Map No. 24 for the City of Albuquerque, Revised 2/14/78, shows the site as having a Zone A designation. We understand that the Zone A designation has been removed from this site. Our proposed drainage plan complies with AMAFCA Resolution 72-2, and should otherwise satisfy your requirements for such plans.

Please review the proposed plan and, if possible, advise us in writing concerning the removal of the flood hazard designation. If you have any questions in this matter, please advise.

Yours very truly,

Neal F. Godwin

NFG:mjb
Enclosure

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
David Rusk

March 13, 1979

Mr. Neal F. Godwin
Godwin Engineering Corporation
3820 Academy Parkway, North
Albuquerque, New Mexico 87109

Dear Mr. Godwin: Re: 7-11 Store at Central and Western Skies Drive.

I have reviewed your evaluation of the potential flooding conditions for the captioned development and I am in concurrence. I have, therefore, instructed my assistant, Fred Aguirre, to approve the plans for this project.

Very truly yours,

Bruno Conegliano
Assistant City Engineer/Hydrology

BC/fs

cc - Dick Heller
Rich Leonard
Drainage File

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7-11 site, S.W. corner — DATE 3/12/79 JOB NO. 207
Central & Western Skies — BY J.L. SHT 1 OF 3.

— Total Runoff —

- Contributing Area (see attached topo)
  = 64.76 in² × 200² / 43,560 = 59.5 ac.
- Lenght of longest run (taken directly down Central) = 3400'
- slope, H: 5656 - 5560 = 96', % S = 2.8%
- Time of concentration, Tc (see attached nomograph, from see lycs) = 15 min.
- Intensity (see attached curve) = 4.0 in/hr.
- assume C = 0.65

$Q_T = CIA = 0.65(4.0)\,59.5 = 154.7$ cfs.

— Reduction for Drop inlets —

9 Double "C" (city of Albuquerque std detail S-13) located along Central Ave. East of project

Area of opening per grate:

3'-0" × 2'-1½" = 6.38 s.f.
− 5 × ¾" × 2'-1" = 0.65 s.f.
− 17 × ½" × 3'-0" = 2.13 s.f.
3.61 s.f. = 7.2 s.f./DI.

$Q = CA\sqrt{2gh} \times F \times$ number of inlets.

use C = 0.60, F = 2/3, h = 0.2'

$Q = 0.60\,(7.2)\sqrt{2(32.2)\,0.2}\;0.67\,(9) = 93.5$ cfs

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DATE 2/13/79 JOB NO. 20-7

BY J.L. SHT 2 OF 3

2 4'-0" x 4'-0" clear D.I. located on North side of Central (see attached topo) assume same grating ∴ same effective opening effective opening = 3.61/6.38 = 57%

Area = (4'-0")² x 0.57 = 9.12 s.f.

$Q = 0.60(9.12)\sqrt{2(32.2)0.2'} \quad 0.67(2) = 26.3$ cfs

$Q_{D.I.} = 93.5 + 26.3 = 119.8$ cfs

Qnet = runoff reaching Central Ave just East of project = $Q_T - Q_{D.I.}$

Qnet = 154.7 − 119.8 = 34.9 cfs

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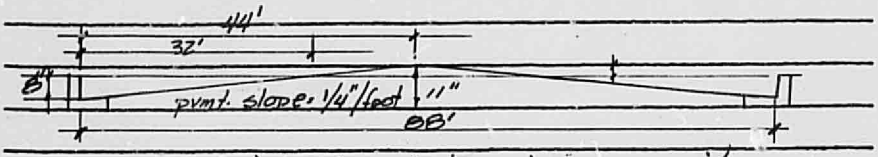
DATE 3/12/79 JOB NO. 20-7

BY J.L. SHT 3 OF 3

— Capacity of Central Ave —

$Q_{req} = Q_{net} = 34.9$ cfs

6 lanes + median = $(6 \times 12') + 16' = 88'$



use Mannings to determine capacity

Area = $0.67 \times 32' = 21.44$ s.f.

wetted perimeter = $\sqrt{0.67^2 + 32^2} \times 2 + 16' = 65.35'$

$R_h = A/P = 21.44/65.35' = 0.33$, $R_h^{2/3} = 0.47$

$S_o = 2.8\% = 0.028$, $S_o^{1/2} = 0.167$

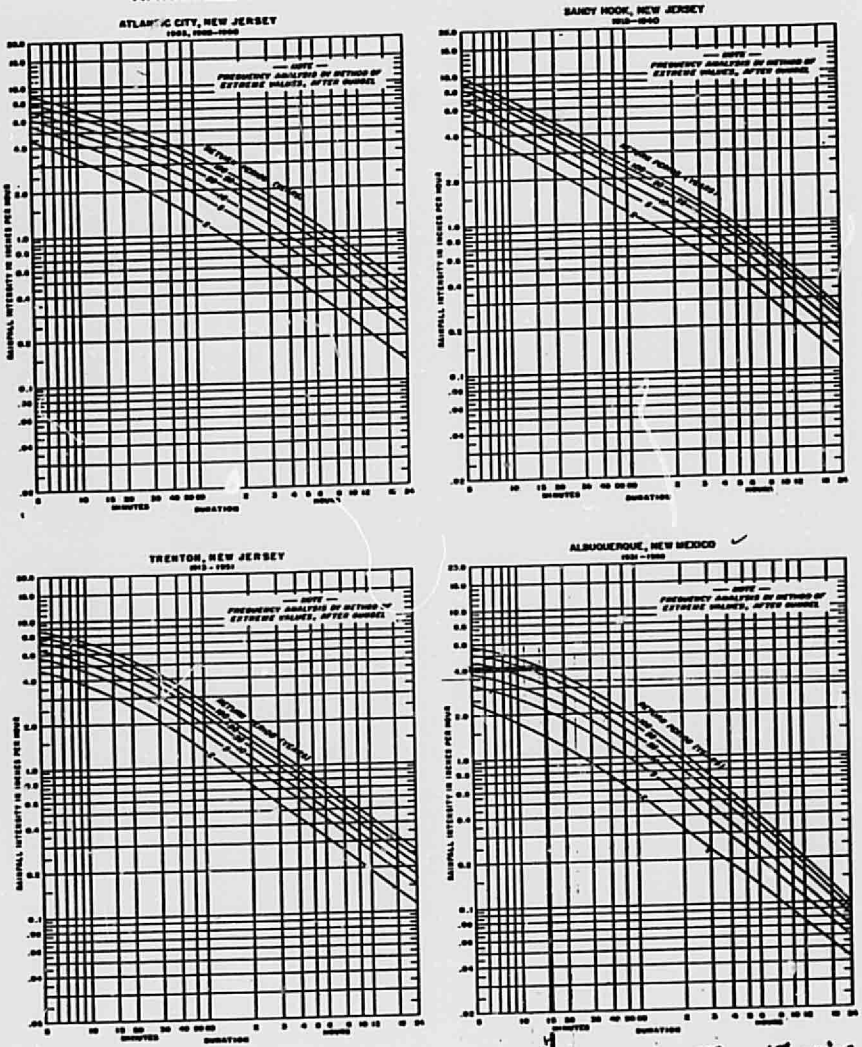
$n = 0.016$

$Q = \frac{1.49}{0.016}(21.44)0.47(0.167) = 156.7$ c.f.s. > 34.9 c.f.s.

therefore no overspill over curb.

Note that the computed capacity of Central is greater than Q_T.

RAINFALL INTENSITY–DURATION–FREQUENCY CURVES



Tc = 15 min.
I = 4.0 in/hr.