HYDROLOGY H18/D12 1 PLAN

H18/D12

1 PLAN

H18-D12
Garcia's Restaurant
Brian G. Burnett
6.4.81

1. The total flowrate (Q_{100}) is as follows:

$A = 1.58$
$C = 0.95$
$I \sim 5.4$ in/hr (100 yr storm)
or 7.0 in/hr

using high value.

$Q = 0.95(1.58)(7.0) \cong 10.5$ cfs.

Because of the short t_c (~6 min) and the fact that peak runoff does not reach Jeannedale & Indian until ≈35 minutes later (taken from MDS Computer Run) ponds are not required.

2. Note: The percent slope used for the pavement appears incorrect. The line should pass through S = 3.3%. This however is insignificant and does not change the t_c.

3. Recommendations: Based on Chuck's 4.7.81 conversation and the proposed grading plan - the project appears feasible and should be accepted.

H18-D12
Garcia's Restaurant
Brian Burnett
6-8-81

Phone Conversation with Vic Chavez.

1. I pointed out that grading will take place outside property line. Vic stated that owner of restaurant land also owns property to the North. He indicated that this should be shown on future plans.

2. No temporary bench mark was indicated on the plans. Vic said the plans are in California and would be changed when they are returned.

Brian G. Burnett
6-8-81

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

June 9,1981

Mr. Victor Chavez
Chavez-Grieves Consulting Engineers, Inc.
6121 Indian School Road N.E., Suite 132
Albuquerque, New Mexico 87110

RE: GARCIA'S RESTAURANT - UPTOWN BOULEVARD (D20-D3)

Dear Mr. Chavez:

The drainage report for the referenced site is approved. However, final approval of the construction plans will be withheld until the temporary bench mark and its elevation are indicated on the grading plan.

If you have any questions concerning the above, please feel free to call me.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

CHAVEZ GRIEVES

CONSULTING ENGINEERS, INC.

DRAINAGE REPORT
FOR
GARCIA'S RESTAURANT
UPTOWN BOULEVARD

RECEIVED

APR 16 1981

CITY ENGINEER

APRIL 1981

CHAVEZ / GRIEVES CONSULTING ENGINEERS, INC.

6121 INDIAN SCHOOL RD. N.E.
SUITE 132
ALBUQUERQUE, N.M. 87110
PH. (505) 881-7376

DRAINAGE REPORT
FOR
GARCIA'S RESTAURANT
UPTOWN BOULEVARD

APRIL 1981

CHAVEZ / GRIEVES CONSULTING ENGINEERS, INC.

6121 INDIAN SCHOOL RD. N.E. SUITE 132
ALBUQUERQUE, N.M. 87110
PH. (505) 881-7376

April 13, 1981

Municipal Development
City Engineer
P.O. Box 1293
Albuquerque, New Mexico 87103

Attention: Chuck Easterling

Regarding: Garcia's Restaurant - Uptown Boulevard
Drainage Report

Dear Mr. Easterling:

Transmitted herewith are four (4) copies of the Drainage Report for the proposed Garcia's Restaurant. Presented is the development criteria for the site reflecting our discussion of April 7, 1981 and the existing hydrologic conditions of the area. Ponding will not be required due to the proximity of existing drainage facilities and the combined effect of the site development and the overall sub-basin characteristics.

If the proposed development guidelines are satisfactory, please indicate by signing in the space provided below and returning three copies to this office. We will then transmit a copy of the approved report to AMAFCA.

I would like to express my appreciation for your assistance in this matter.

Please feel free to call if we can be of any further assistance.

Very Truly Yours

Victor J. Chavez

Victor J. Chavez P. E. # 5713

Approved : City Hydrologist _____ Date _____

DRAINAGE REPORT
FOR
GARCIA'S RESTAURANT
UPTOWN BOULEVARD

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GRADING PLAN.....APPENDIX - B

DRAINAGE REPORT
FOR
GARCIA'S RESTAURANT
UPTOWN BOULEVARD

PURPOSE

The purpose of this report is to transmit drainage data and development guidelines relative to the proposed Garcia's Restaurant such that the proposed development will niether be susceptible to flooding nor will it increase the threat of flooding to downstream areas.

SCOPE

The scope of this report is limited to an investigation of the study site and those immediate areas which might contribute flow to the site or are affected by flows from the site. Site development has been reviewed as it relates to existing hydrologic and hydraulic conditions in the surrounding watershed. Conclusions of this report are intended to provide development guidelines only and to indicate the feasibility of the proposed development. It is not the intent of this report to present finalized construction documents.

LOCATION AND DESCRIPTION

The study site is located in the Northeast Heights of Albuquerque in the Jeannedale Addition. The parcel of land consists of the easternmost two-thirds of Tract A-2, Unit 5, and is bounded by; Coronado Shopping Center on the north, Coronado Four Theater on the east, and Uptown Blvd. on the south and southwest, containing approximately 1.58 acres.

The surrounding area is a portion of the Uptown Sector Master Plan and is either fully developed or is in the process of being developed with commercial buildings. Presently the site is undeveloped.

The site generally slopes downward towards the southwest with about ten feet of difference in surface elevation being present

across the building site. A light growth of weeds is present on portions of the site. Soil conditions consist of man-made fill placed on the site during the construction of the Coronado Shopping Center. The man-made fill contains clayey sands with underlying natural layers of silty sands, clayey sands and sandy silts.

Supporting soils are sensitive to changes in moisture content and will require that runoff be directed away from the building. Pondinshould be eliminated adjacent to the building foundations.

EXISTING DRAINAGE CONDITIONS

Presently the site slopes to the southwest where runoff flows to Uptown Blvd., thence to an existing 72' diameter storm drain located in Jeannedale Blvd. The storm drain empties into an existing North Diversion Channel inlet structure located south of the intersection of San Pedro Blvd. and Indian School Rd.

Runoff from upstream areas is dominated by the development of the Coronado Center Shopping Center. A drainage study was completed for units 1 & 2 of the Jeannedale Addition, which includes the shopping center, by Mac Cornack & Burns, Consulting Engineers, Inc. in 1972. Runoff from the center's parking area is directed to the west end of the site where it is gathered in a storm drain which originally emptied onto empty land south of Uptown Blvd. Subsequent development of One Town Center included the installation of a 36' diameter storm drain which transports the shopping center runoff to the existing 72' diameter drain located in Jeannedale Blvd.

Parking areas located immediately adjacent to the north edge of the study site slope north and west to the storm drain system described above.

Parking areas located immediately east of the study site slope south to Uptown Blvd. and then to the existing storm drain located in Jeannedale Blvd. as described above.

As a result of these existing developments, the site is not subject to runoff from adjacent areas and will not require the transportation of off-site flows across the property.

As shown on Plate I in Appendix A, runoff from the site contributes to flows at the intersection of Jeannedale Blvd. and Indian School Rd. The intersection, and upstream areas on Indian School, are prone to flooding in the event of a 100-year storm. Hydrographs for the reach of Indian School Rd. between Louisianna and Jeannedale indicate that flows in excess of existing storm drain capacities will occur approximately forty (40) after the beginning of the storm event.

DESIGN CRITERIA

Development guidelines are based on the recently adopted information provided in the "Master Plan of Drainage for the City of Albuquerque" as prepared by Bohannan Huston Inc. and approved in 1981.

Design storm is the 100-year frequency storm with intensity and duration as shown on the curves 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.

Analysis of storm runoff is based on the Rational Method Formula, Q=CIA where:

Q = Runoff quantity in cubic feet per second
C = Runoff coefficent, non-dimensional
I = Intensity in inches per hour
A = Contributing area in acres

PROPOSED DRAINAGE CONDITIONS

Improvement plans for the site include a restaurant, parking lot and landscaped areas. Grading will positive drainage from the building to minimize the potential for foundation settlement problems. The majority of the runoff will be generated in the parking area associated with building. Due to the hydraulic characteristics of the paved areas, the time of concentration for runoff will be between one and five minutes. The peak runoff for the site will occur well before the peak runoff occurs in Indian School Rd. The use of ponds as temporary detention areas would prolong the time required to drain the increased

volume of runoff due to development, and would result in an increased total flow at the time that the peak flow occurs in Indian School Rd. Elimination of the ponds would, at the same time that the peak flow occurs, contribute a runoff approximately equal to the Q_5 rate or the design rate for emptying the ponds. The advantage remains, however, in that the rate of runoff from the site will be decreasing rapidly since there are no ponds to drain.

CONCLUSIONS AND RECCOMENDATIONS

On the basis of the study of this report, it is concluded that the study site can be developed as proposed without the use of detention ponding without increasing the threat of flooding to lower lying areas and will not itself be susceptible to flooding.

Victor J Chavez

Victor J. Chavez P.E.

5713

APPENDIX - A

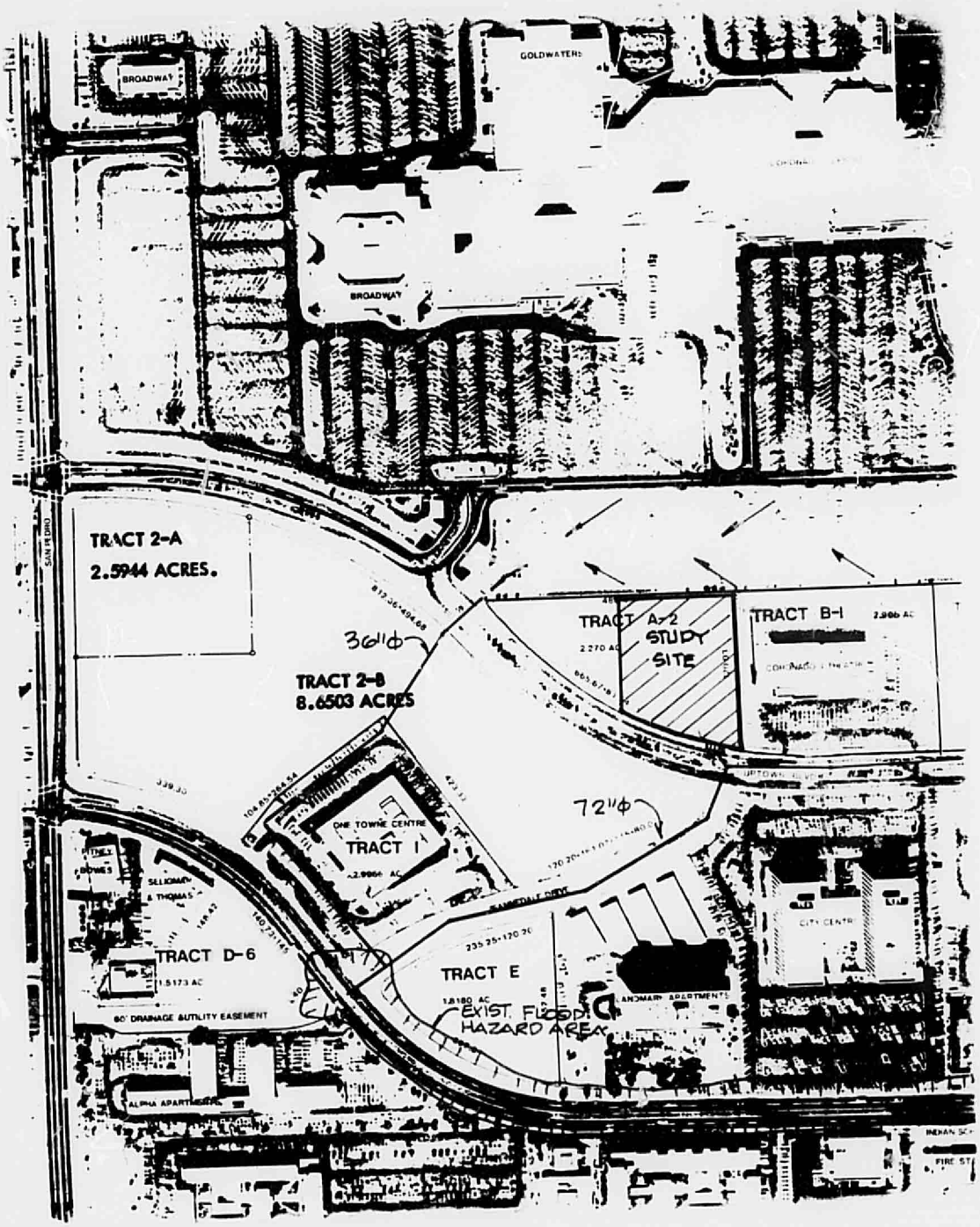
BROADWAY
GOLDWATERS
BROADWAY
TRACT 2-A
2.5944 ACRES.
TRACT 2-B
8.6503 ACRES
36"ϕ
TRACT A-2
STUDY
SITE
TRACT B-1
72"ϕ
ONE TOWNE CENTRE
TRACT 1
TRACT D-6
TRACT E
EXIST. FLOOD
HAZARD AREA
60' DRAINAGE &UTILITY EASEMENT
ALPHA APARTMENTS
CITY CENTRE

FIG. A. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 2 YEARS.

FIG. B. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 10 YEARS.

FIG. C. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 50 YEARS.

FIG. D. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 5 YEARS.

FIG. E. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 25 YEARS.

FIG. F. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 100 YEARS.

COMPUTATION OF i IN RATIONAL FORMULA.

EXAMPLE: Assume expectancy period = 5 years, See Fig. D, assume locality, find 1 hour intensity = 1.75 in. per hour.

FIG. G-INTENSITY EXPECTATION FOR ONE-HOUR RAINFALL.*

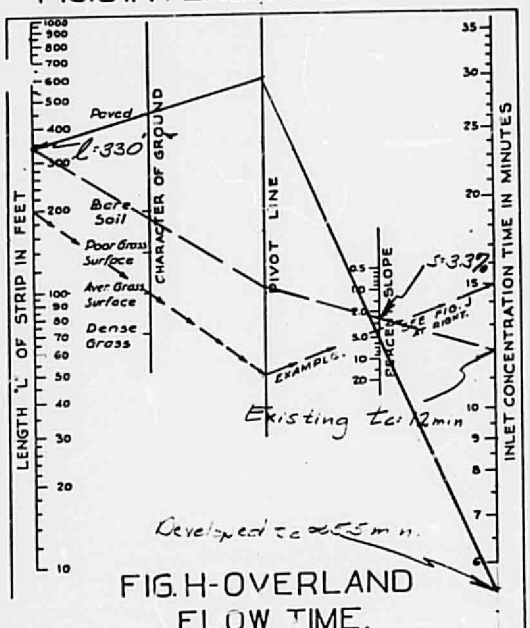

FIG. H-OVERLAND FLOW TIME.

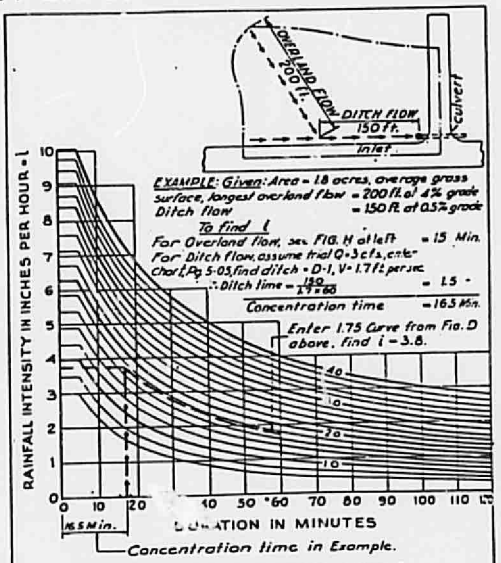

FIG. J-VALUES OF i
RAINFALL INTENSITY-DURATION.+

*Reproduced from Miscellaneous Publication No. 204, U.S. Dept. of Agriculture, by David L. Yarnell.
+Adapted from Engineering Manual of the War Department, Part XIII, Chap. I, Dec. '45.

* SS W ON INDIAN SCHOOL FROM LOUISIANA FLOWING INTO I-40 CHANNEL AT SAN PEDRO *
PRINT HYD ID=18 CODE=10

HYDROGRAPH NUMBER 1003.3

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	60.	4.000	25.
0.200	239.	2.200	52.	4.200	24.
0.400	298.	2.400	46.	4.400	23.
0.600	298.	2.600	41.	4.600	22.
0.800	253.	2.800	38.	4.800	21.
1.000	175.	3.000	35.	5.000	20.
1.200	132.	3.200	32.	5.200	19.
1.400	103.	3.400	30.	5.400	[illegible]
1.600	84.	3.600	28.	5.600	[illegible]
1.800	70.	3.800	27.	5.800	17.

RUNOFF VOLUME = 36.698 ACRE-FT
PEAK DISCHARGE RATE = 298.0 CFS
PEAK OCCURRED AT 0.22 HRS.

* OLF WEST ON INDIAN SCHOOL FROM LOUISIANA
PRINT HYD ID=19 CODE=10

HYDROGRAPH NUMBER 1003.4

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	0.	4.000	0.
0.200	0.	2.200	0.	4.200	0.
0.400	151.	2.400	0.	4.400	0.
0.600	90.	2.600	0.	4.600	0.
0.800	0.	2.800	0.	4.800	0.
1.000	0.	3.000	0.	5.000	0.
1.200	0.	3.200	0.	5.200	0.
1.400	0.	3.400	0.	5.400	0.
1.600	0.	3.600	0.	5.600	0.
1.800	0.	3.800	0.	5.800	0.

RUNOFF VOLUME = 4.343 ACRE-FT
[redacted]

NO POND REQUIRED! 4-7-81

APPENDIX - B