HYDROLOGY

M16/D9

MOTEL & RESTAURANT AT
NORTHEAST CORNER YALE
& ALAMO S.E.

M16-D9

3 PLANS

WILSON & COMPANY
ENGINEERS & ARCHITECTS
P.O. BOX 8305
1821 SAN PEDRO N.E. ▪ ALBUQUERQUE NEW MEXICO 87110
505 255-4350
ENGINEERS
ARCHITECTS
PLANNERS

May 3, 1979

Mr. Bruno Conegliano
Assistant City Engineer - Drainage
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RECEIVED
MAY 04 1979
CITY ENGINEERS

Re: Preliminary Drainage Report
Motel and Restaurant at Northeast
Corner Yale & Alamo S.E.

Dear Mr. Conegliano:

Enclosed are two copies of the preliminary drainage report for the site at the northeast corner of Yale Blvd. and Alamo Ave. SE.

I would be glad to discuss this report with you at your earliest convenience.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

Enclosures

-sp

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

79-507A

May 18, 1979

2400 Yale St

Mr. Robert F. Sykes
Wilson & Company
1321 San Pedro N.E.
Albuquerque, New Mexico 87110

Re: Preliminary Drainage Report - Motel and Restaurant at Northeast Corner Yale & Alamo S.E.

Dear Mr. Sykes:

The preliminary report for the referenced project is approved. The site grading plan for this property will have to be submitted, as discussed, paying particular attention to the preservation of the integrity of the properties to the east and to the north.

The drainage areas served by the different ponds must be delineated and it must be shown that the balance exists between the drainage areas and individual ponding volumes. It is also requested that the overflow (the natural discharge in excess of the ponding capacity) be released from the property through curb cuts without overflow of the sidewalks.

The recommendation is also made that the ponds be connected through a small diameter pipe (3"-4" dia.) to allow the ponds to be drained into the storm sewer in Alamo St.

If additional information is needed, please do not hesitate to call my office.

Very truly yours,

Bruno Conegliano
Assistant City Engineer-Hydrology

BC/fs

cc - Dick Heller, City Engineer
Rich Leonard, AMAFCA
Drainage File

WILSON & COMPANY
ENGINEERS
ARCHITECTS

505 255-1950

ENGINEERS
ARCHITECTS
PLANNERS

Office Location... 1321 SAN PEDRO N.E. ■ ALBUQUERQUE, NEW MEXICO 87110

An Equal Opportunity Employer

Mailing Address... P.O. BOX 3305 ■ ALBUQUERQUE, NEW MEXICO 87190

October 17, 1979

RECEIVED
OCT 17 1979
CITY ENGINEER

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

Re: Final Grading Plan
Motel at NE Corner Yale & Alamo St. SE

Dear Mr. Conegliano:

Enclosed is a print of the final grading plan for the motel at the northeast corner of Yale and Alamo.

Also enclosed is a print of the connection showing details of the connection to the storm sewer in Alamo. We have controlled the flow with a "V" notched weir. The flow is restricted to about 3.8 cfs.

Please give me a call if you have any questions.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

Enclosures

sp

COMP. RFS
CK.
DATE 16 Oct 79

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3308
ALBUQUERQUE
NEW MEXICO

LOC. Alb. FILE 79-507
PROJ. Motel Alamo & Lb SHEET 1
SUBJ. Final Drainage Plan OF 3

100 yr rainfall

Time	Inches rainfall
5min	0.6
10min	1.0
15min	1.2
30min	1.7
1 hr	2.1
2 hr	2.3
3 hr	2.4
6 hr	2.6
24 hr	3.2

Area A-1

Area = 43,600 ft²

Storage Volume
Area @ Elev

Elev	Area	Vol	Σ Vol
01	0		
		152	152
02	456		
		1348	1500
03	2516		
		5179	6679
04	8418		

Discharge @ 1 cfs

C = 0.95

Time	Vol Inflow cfs	Discharge cfs	Storage Reqd cfs.
5	2071	300	1771
10	3452	1600	2852
15	4142	900	3242
30	5868	1800	4068
60	7249	3600	3649
120	7939	7200	739
180	8284	10800	0

COMP.
CK.
DATE

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3308
ALBUQUERQUE
NEW MEXICO

LOC. Alb. FILE 79-507
PROJ. Motel Alamo Vale SHEET 2
SUBJ. Final Drain. Plan OF 3

Area A-2
Area = 24,200 ft²

Storage Volume

Elev	Area	Vol	Σ Vol
08.5	0		
		41	41
09	243		
		1138	1179
10	2406		
		4072	5251
11	6008		

C = 0.95 Outflow = 1 cfs

Time	Vol Inflow	Discharge	Storage
5 min	1150	300	850
10 min	1916	600	1316
15 min	2299	900	1399
30 min	3257	1800	1457
60 min	4023	3600	423
120 min	4406	7200	—

Roof,
Area = 21,970 ft²
C = 1.0
9 roof drains @ 0.2 cfs = 1.8 cfs.

Time	Vol Inflow	Discharge	Storage
5	1099	540	559
10	1831	1080	751
15	2197	1620	577
30	3112	3240	0

CHIEF OF PARTY RFS

INST.

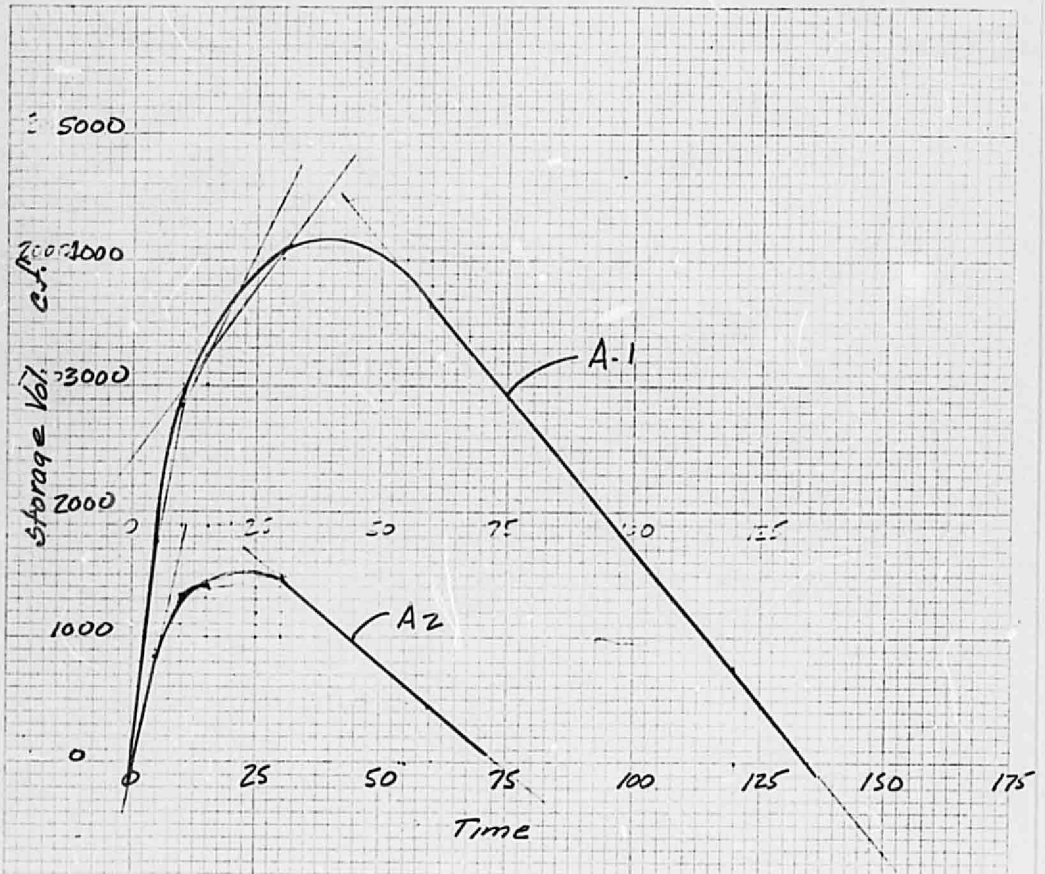
WEATHER DATE 16 Oct 79

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 28
SALINA
KANSAS

LOC 4/6 FILE 79-507

PROJ. Motel Almo & Vale SHEET 3

SUBJ. Storage Curve OF 3



TIME - STORAGE CURVE

Discharge Rate = 1 cfs

FORM 99

A&E ENGINEERING INC.
CIVIL ENGINEERING, LAND PLANNING, AND SURVEYING

September 15, 1981

Mr. Fred Aguirre
City Engineers - Hydrology
P. O. Box 1293
Albuquerque, NM 87103

RE: Village Inn Restaurant
2340 Yale - SE

Dear Sir:

In reference to our meeting on September 14, 1981, in your office regarding the overall drainage plan for the referenced project.

Mr. Pat Aguilar and myself checked with the Building and Inspection Department and were then sent out to central records and again they failed to provide the plans for the Airport Inn Hotel, 2400 Yale - SE.

We then met with Mr. Robert F. Sykes of the Wilson Company and he reviewed his file on this project and informed us that the drainage for the restaurant area of this site was to drain into Yale Avenue. He based his decision on the fact that this portion of the overall drainage area was included and was allowed to drain into Yale Avenue.

Mr. Aguilar's company is placed in an awkward situation and is in need of obtaining a foundation permit immediately In our opinion since the drainage for the overall area has been accounted for that a drainage report for the restaurant portion is not needed.

We will provide your office with any other information that you may need in the immediate future regarding the final grades of the site.

Very truly yours,
A & E Engineering Inc.

John F. Esquibel

1930 SAN PEDRO N.E.
SUITE 114 (505-266-8791)
ALBUQUERQUE, NEW MEXICO 87110

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. M16-09 DATE: 7/6/84

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: Airport Best Western Inn Addn

ATTENDANCE: WHO	REPRESENTING
Vic Chavez	Chavez-Grieves
Jackie McDowell	" "
Billy Goolsby	City

FINDINGS: ① Approved Drainage Plan to update the existing plan showing the proposed modification prior to release of building permit.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Victor J Chavez
TITLE: Proj Eng
DATE: 7/6/84

SIGNED: Billy J. Goolsby
TITLE: CE/Hydrology
DATE: 7/6/84

INFORMATION SHEET

PROJECT TITLE AIRPORT BEST WESTERN INN ADDITION TYPE OF SUBMITTAL DRAINAGE

ZONE ATLAS PAGE NO. M-16-Z CITY ADDRESS 2400 YALE S.E.

LEGAL DESCRIPTION EASTERLY PORTION OF LOT "A", BLOCK 2, AIRPORT INDUSTRIAL PARK

ENGINEERING FIRM CHAVEZ-GRIEVES CONSULT.ENGRS. CONTACT VICTOR J. CHAVEZ

ADDRESS 4520 MONTGOMERY NE, CITY 87109 PHONE (505) 881-7376

OWNER WESTERN HOST INC. CONTACT RON YOUNG

ADDRESS P.O. BOX 809,BONITA, CAL. 92602 PHONE (619) 475-3520

ARCHITECT FANNING-BARD ARCHITECTS CONTACT CHRIS LARSON

ADDRESS 110 AMHERST DR. S.E., CITY 87106 PHONE (505) 266-5874

SURVEYOR ROSS HOWARD CO. CONTACT ROSS HOWARD

ADDRESS CORRALES, NEW MEXICO PHONE (505) 897-0291

CONTRACTOR _____ CONTACT _____

ADDRESS _____ PHONE _____

PRE-DESIGN MEETING:

X YES

____ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL

____ SKETCH PLAT APPROVAL
____ PRELIMINARY PLAT APPROVAL
____ SITE DEVELOPMENT PLAN APPROVAL
____ FINAL PLAT APPROVAL
X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY APPROVAL
____ ROUGH GRADING PERMIT APPROVAL
____ GRADING/PAVING PERMIT APPROVAL
____ OTHER _____ (SPECIFY)

RECEIVED
AUG 17 1984
HYDROLOGY SECTION

DATE SUBMITTED AUGUST 15, 1984

BY: VICTOR J. CHAVEZ, P.E.

DUNCAN & ASSOCIATES
1201 EUBANK NE SUITE 1
ALBUQUERQUE, NEW MEXICO 87112

CITY OF ALBUQUERQUE,
HYDROLOGY DEPARTMENT
ALBUQUERQUE, NEW MEXICO

SUBJECT: AIRPORT BEST WESTERN INN, 2400 YALE SE

DEAR SIRS:

THIS LETTER IS FOR THE PURPOSE OF OBTAINING A TEMPORARY CERTIFICATE OF OCCUPANCY PERMIT PENDING A REVISED DRAINAGE PLAN FROM THE ENGINEER. THIS REVISION WAS MADE NECESSARY BECAUSE OF DEVELOPMENT OF THE PROPERTY TO THE NORTH AFTER OUR PLANS WERE SUBMITTED TO THE CITY FOR PERMIT.
(30 DAYS) T.R.D.

SINCERELY,

TOM DUNCAN
DUNCAN & ASSOCIATES
GENERAL CONTRACTOR

RON YOUNG
PRESIDENT
WESTERN HOSTS INC.

RECEIVED
APR 26 1985
HYDROLOGY SECTION

M16-D9

INFORMATION SHEET

PROJECT TITLE AIRPORT BEST WESTERN INN ADDITION TYPE OF SUBMITTAL DRAINAGE

ZONE ATLAS PAGE NO. M-16-Z CITY ADDRESS 2400 YALE S.E.

LEGAL DESCRIPTION EASTERLY PORTION OF LOT "A", BLOCK 2, AIRPORT INDUSTRIAL PARK

ENGINEERING FIRM CHAVEZ-GRIEVES CONSULT.ENGRS. CONTACT VICTOR J. CHAVEZ

ADDRESS 4520 MONTGOMERY NE, CITY 87109 PHONE (505) 881-7376

OWNER WESTERN HOST INC. CONTACT RON YOUNG

ADDRESS P.O. BOX 809,BONITA, CAL. 92602 PHONE (619) 475-3520

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ADDRESS 110 AMHERST DR. S.E., CITY 87106 PHONE (505) 266-5874

SURVEYOR ROSS HOWARD CO. CONTACT ROSS HOWARD

ADDRESS CORRALES, NEW MEXICO PHONE (505) 897-0291

CONTRACTOR _____ CONTACT _____

ADDRESS _____ PHONE _____

PRE-DESIGN MEETING:

X YES

____ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL

____ SKETCH PLAT APPROVAL
____ PRELIMINARY PLAT APPROVAL
____ SITE DEVELOPMENT PLAN APPROVAL
____ FINAL PLAT APPROVAL
X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY APPROVAL
____ ROUGH GRADING PERMIT APPROVAL
____ GRADING/PAVING PERMIT APPROVAL
____ OTHER _____ (SPECIFY)

RECEIVED
AUG 28 1984
HYDROLOGY SECTION

DATE SUBMITTED AUGUST 28, 1984

BY: VICTOR J. CHAVEZ, P.E.

F05-135-5364

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

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

September 28, 1984

Mr. Victor J. Chavez
Chavez-Grieves Consulting Engineers
4520 Montgomery, N.E.
Albuquerque, New Mexico 87109

RE: AIRPORT BEST WESTERN INN ADDITION (M16-D9) RECEIVED AUGUST 17, 1984

Dear Mr. Chavez:

Based on the information provided on your August 17, 1984 submittal, the above referenced drainage plan is approved.

If you have any questions, please feel free to call me at 766-7644.

Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, P.E.
Civil Engineer/Hydrology

BJG:BJM/bm

PRELIMINARY

ENGINEER'S DRAINAGE REPORT

For

PROPOSED MOTEL & RESTAURANT

At

NE CORNER OF ALAMO AVE. & YALE BLVD. SE

RECEIVED
MAY 0 4 1979
CITY ENGINEERS

WILSON & COMPANY
ENGINEERS & ARCHITECTS
1321 SAN PEDRO N.E.
ALBUQUERQUE, NEW MEXICO

MAY 1979
(79-507A)

WILSON & COMPANY
ENGINEERS ARCHITECTS

PRELIMINARY

ENGINEER'S DRAINAGE REPORT

For

PROPOSED MOTEL & RESTAURANT

At

NE CORNER OF ALAMO AVE. & YALE BLVD. SE

LOCATION: The proposed motel and restaurant is located at the northeast corner of the intersection of Alamo Ave. and Yale Blvd. SE on the south 300 feet of Lots 1-A and 1-B, Block 2, Airport Industrial Park in the City of Albuquerque, New Mexico. The exact location is shown on the attached copy of Zone Atlas Map M-16.

DESIGN CRITERIA: The six hour, 100 year rainfall value of 2.6 is used for computing run-off volumes.

The Rational Formula is used to compute the rate of run-off. The Rational Formula is as follows:

$Q = CiA$

Q = Rate of run-off in cubic feet per second

C = Coefficient of run-off

i = Rainfall intensity

A = Drainage area in acres

The value for i for a 100 year rainfall is determined by the following formula as adopted by the 1954 Albuquerque Master Drainage Study.

$$i_{100} = \frac{189}{tc+25}$$

tc = time of concentration in minutes.

DISCUSSION: The location for the proposed improvements is discussed in the Albuquerque District, Corps of Engineers publication "Flood Plain Information, Albuquerque Arroyos, Albuquerque, New Mexico, Part V" dated April 1975.

Arroyo 10-C of the study crosses the southwest corner of the project. The 100 year flood crest elevation at the intersection of Yale Blvd. and Alamo Ave. is 5205.0 which is approximately 0.8 ft. above the top of curb at the west end of the northeast curb return.

Since the Corps of Engineers study was completed the property along the south side of Alamo Street has been improved by the construction of an office and warehouse complex. A drainage ditch has been constructed along the south side of the complex and a 60-inch storm sewer constructed to connect the ditch with the storm sewer in Alamo Ave.

The total drainage area at the intersection of Yale and Alamo is 215 acres with maximum 100 year rate of flow of 424 cfs.

The area south of the development along the south side of Alamo Ave. has been designated A-1 and is intercepted by the drainage ditch and 60-inch concrete storm sewer. The 100 year peak rate of run-off is 207 cfs. The slope of the 60-inch pipe from drainage easement to Alamo Ave. is approximately 2.7%. To develop a flow of 207 cfs it is necessary to have a depth of water of 6 feet at the entrance to the pipe and this is possible at the existing pipe entrance. The flow in the storm sewer will be supercritical. With an n value of 0.024 the depth of flow in the pipe would be about 3.6 feet with a velocity of 13-feet per second. With an n value of 0.015 the depth of flow in the pipe would be about 2.4-feet with a velocity of about 19-feet per second. Under existing conditions area A-1 does not have an effect on the project site.

The area that drains directly to Alamo Ave. has been designated A-2. The 100 year peak flow is 245 cfs. The capacity of Alamo Ave. flowing curb full is 198 cfs at a velocity of 10.7 fps.

There has been a storm sewer system constructed in Alamo Ave. From the Urban Storm Drainage Manual developed by the Denver Regional Council of Governments a Double C inlet on a 4% grade will intercept about 10 cfs. The two inlets immediately east of the intersection of Yale and Alamo have a combined capacity of 107 cfs. Thus the total maximum amount of flow intercepted is 167 cfs and approximately 78 cfs will flow by the intersection of Alamo and Yale and thence north on Yale. If a safety factor of one is assumed for the grate inlets the maximum amount of flow intercepted would be 229 cfs, but I do not believe this is a valid assumption. The flow by should not be serious since most of the flow in Yale south of Alamo is intercepted in a series of curb and cattle guard inlets.

The total run-off valume from the undeveloped site for a 6 hour, 100 year rainfall is 2,830 cu.ft. The total run-off volume with the proposed improvements for the same storm is 23,785 cu.ft. Thus it will be necessary to provide ponding capacity of about 20,955 cu.ft.

RECOMMENDATIONS: Since there is adequate storm sewer facilities in Alamo Avenue it is recommended the parking area be graded to retain the run-off and that the run-off then be discharged to the 60-inch storm sewer at the rate of 3 cubic feet per second. Based on a run-off factor of 0.85 and 100 year rainfall and a discharge rate of 3 cfs the required volume of storage is 11,000 cubic feet.

It is also recommended that the landscaped area along the sidewalk be bermed to an elevation about a foot above the top of curb.

Enclosures include:

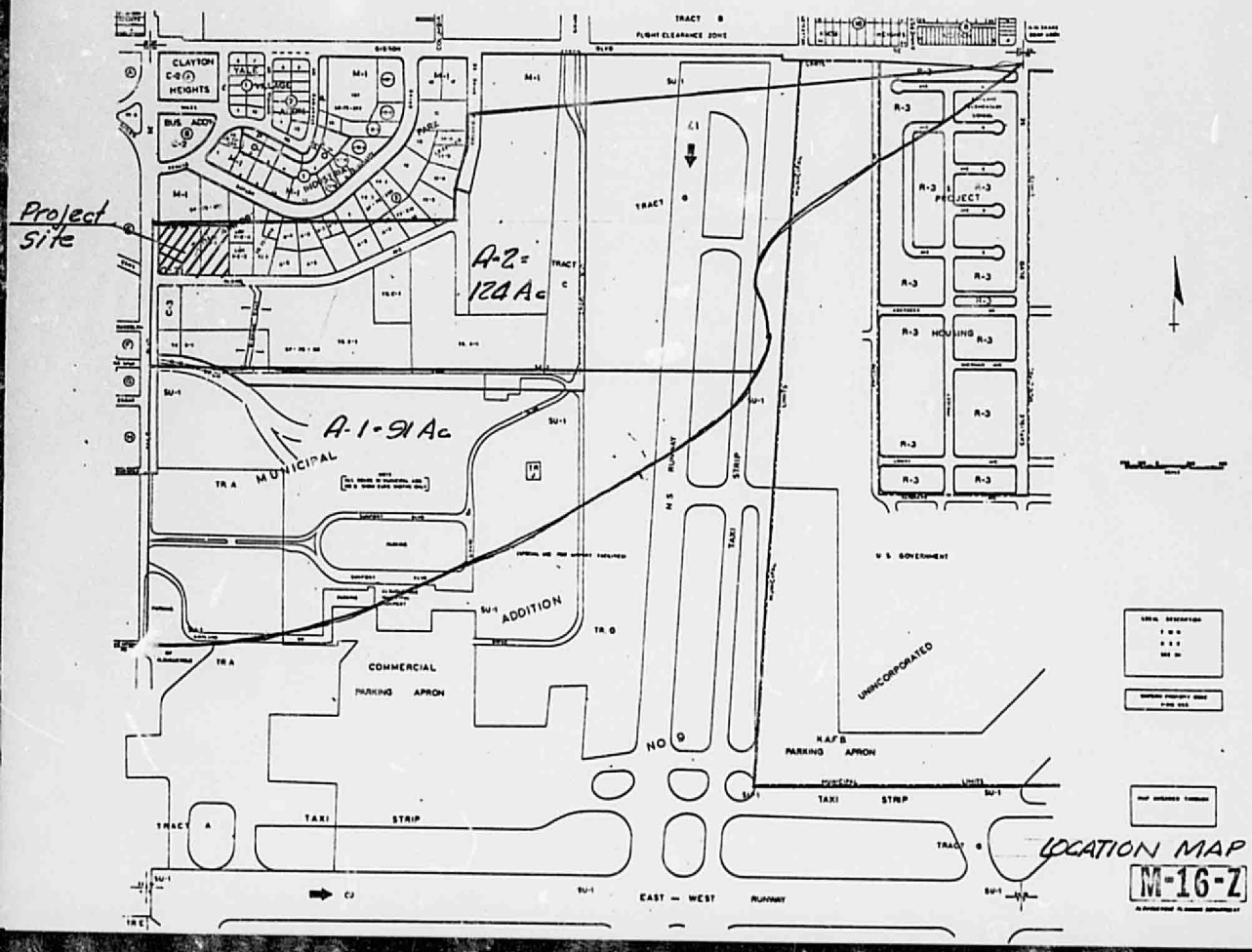
Location Map

Storm Sewer Map

4 Pages of Calculations

Preliminary Topography Map

Preliminary Site Development Plan



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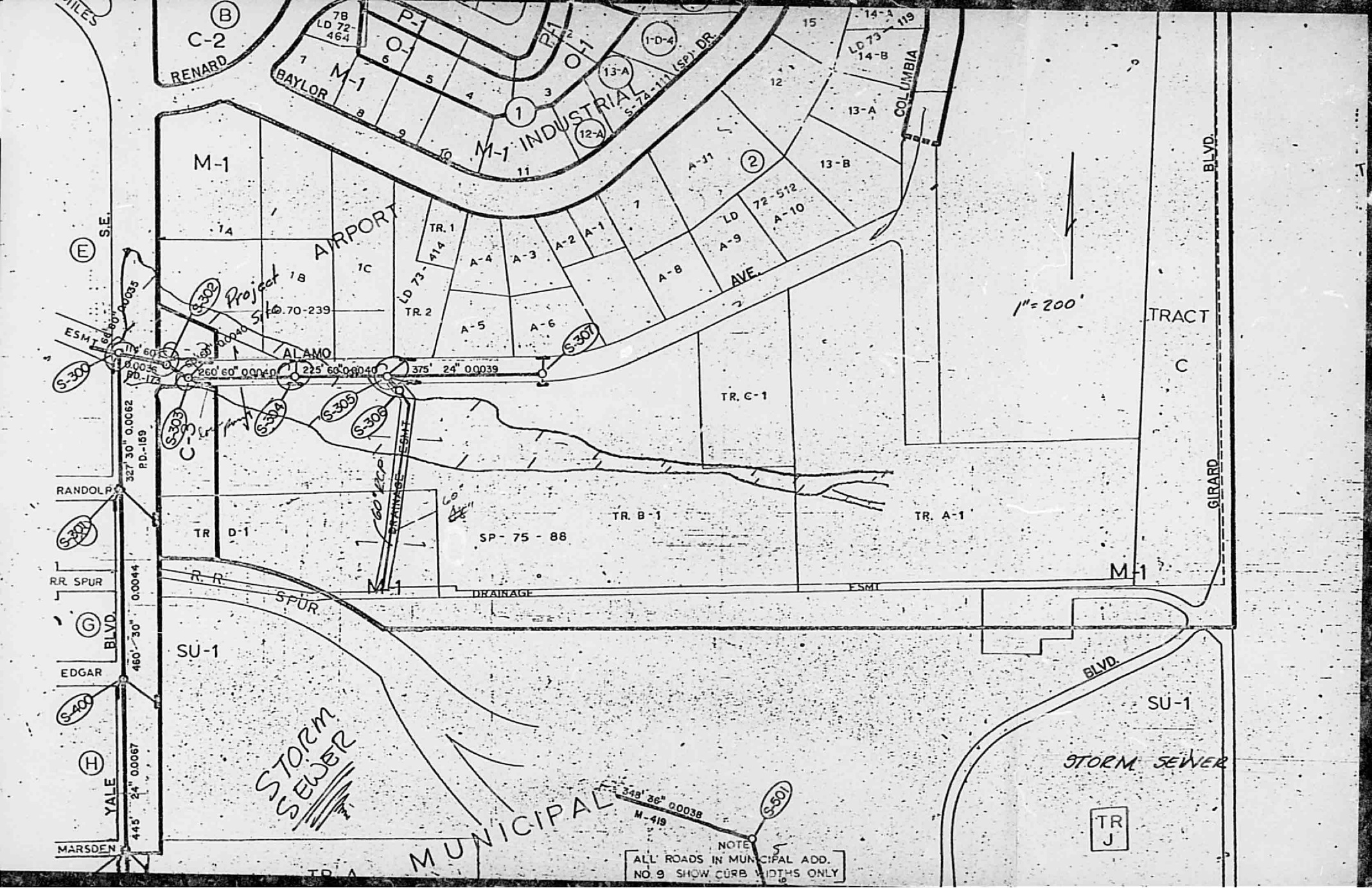

C-2
RENARD
BAYLOR
M-1
O-1
P-1
P.H.
M-1 INDUSTRIAL
S-74-111 (SP) DR.
COLUMBIA
M-1
AIRPORT
TR. 1
TR. 2
LD 73-414
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
A-9
A-10
A-11
LD 72-512
AVE.
Project Site
ALAMO
260' 60" 0.0040
225' 60" 0.0040
375' 24" 0.0039
S-300
S-301
S-302
S-303
S-304
S-305
S-306
S-307
TR. C-1
TR. B-1
TR. A-1
SP-75-88
TR D-1
DRAINAGE ESMT
R.R. SPUR
M-1
SU-1
STORM SEWER
MUNICIPAL
349' 36" 0.0038
M-419
S-501
NOTE
ALL ROADS IN MUNICIPAL ADD. NO. 9 SHOW CURB WIDTHS ONLY
1"=200'
TRACT C
GIRARD BLVD.
BLVD.
TR J
RANDOLPH
327' 30" 0.0062
P.D.-159
RR SPUR
EDGAR
BLVD.
460' 30" 0.0044
YALE
445' 24" 0.0067
MARSDEN
S-400
ESMT
260' 60" 0.0040
P.D.-173

COMP. RFS
CK.
DATE 2 May 79

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3388
ALBUQUERQUE
NEW MEXICO

LOC Albuquerque FILE 79-507A
PROJ. Drain Report SHEET 1
SUBJ. OF 4

Total Flow @ Intersection Alamo & Yale SE (Incl. Storm Sew)

Area = 215 Ac $t_c = \frac{3900}{2 \times 60} = 32.5$ min

$i_{100} = \frac{189}{t_c + 25} = \frac{189}{57.5} = 3.29$ in/hr

C = 0.60

$Q = CiA = (0.60)(3.29)(215) = 424$ cfs

Max Flow in Street @ Alamo & Yale SE Area A-2

Area = 124 Ac $t_c = \frac{3900}{2 \times 60} = 32.5$ min

$i_{100} = \frac{189}{t_c + 25} = \frac{189}{57.5} = 3.29$ in/hr

C = 0.60

$Q = CiA = (0.60)(3.29)(124) = 245$ cfs

Total Flow From Lot Undeveloped

100yr 6hr rainfall = 2.6 in

C = 0.10 (fine sand)

Total Flow = $3 \times 43560 \times \frac{2.6}{12} \times 0.10 = 2,830$ cu ft

Total Flow From Lot Developed

Roof = .65 Ac =	28,310 ft²	C = $\frac{.65}{3.00} \times .95 =$	.21
Grass = .61 Ac =	26,572 ft²	C = $\frac{.61}{3.00} \times .10 =$	.08
Parking 1.74 Ac	75,794 ft²	C = $\frac{1.74}{3.00} \times .95 =$	.55
			C = .84

Total Flow = $3 \times 43560 \times \frac{2.6}{12} \times .84 = 23,783$ cu ft

Max Flow Area A-1

Area = 91 Ac. C = 0.60 $t_c = \frac{5000}{2 \times 60} = 25$ min

$i = \frac{189}{25+25} = \frac{189}{50} = 3.78$

$Q_{100} = CiA = (0.60)(3.78)(91) = 207$ cfs.

COMP. RFS
CK.
DATE 3 May 79

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3308
ALBUQUERQUE
NEW MEXICO

LOC. Albuquerque FILE 79-507A
PROJ. Drain Report SHEET 2
SUBJ. OF 4

Total Flow From Lot Developed with roof ponding

Gross = .61 Ac = 26,572 ft² C = $\frac{.61}{3.00} \times .40 = .08$
Roof = .65 Ac = 28,314 ft² C = $\frac{.65}{3.00} \times 0 = .00$
Parking = 1.74 Ac = 75,794 ft² C = $\frac{1.74}{3.00} \times .95 = .55$
C = 0.63

Total Flow = $3 \times 43560 \times \frac{2.6}{12} \times 0.63 = 17,838$ cu ft.

Capacity Alamo St.
St Width = 44' F-F 6" Crown S = .0386 '/ft

Area Curb Full = (.17)(44) + (.5)(44)(.5) = 7.48 + 11 = 18.48 sq ft.

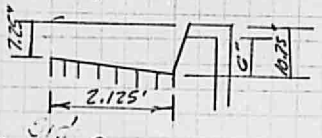
Wetted Perimeter = 44 + 1.33 = 45.33

R = $\frac{18.48}{45.33}$ = 0.41 $R^{2/3}$ = .55

Velocity curb full = $\left(\frac{1.486}{.015}\right)(.55)(.0386)^{1/2}$ = 10.70 ft/sec

Q = Av = 18.48 × 10.70 = 198 cfs.

Capacity Dbl C Inlet in depression Curb Full



Curb Opening $Q = CA\sqrt{2gh}$
C = coef = 0.6
A = Area side opening
h = vertical head from top of water to mid point side opening
g = 32.16

A = (0.5)(6.5) = 3.25 ft²

h = $\frac{(10.75 - 6)}{12} + 3$ = .6458 ft

Q = $(0.6)(3.25)(2 \times .6458 \times 32.16)^{1/2}$ = 12.57 cfs

COMP. TFS
CK.
DATE 3 May 79

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3308
ALBUQUERQUE
NEW MEXICO

LOC. Albuquerque FILE 79-507A
PROJ. Drain Rept. SHEET 3
SUBJ. OF 4

Grate Opening $Q = \frac{CL(H)^{3/2}}{2}$

C = coef = 3
L = Gross Perimeter
H = vertical height top of grate to water surfac
2 = safety factor

$L = (2.125 + 7)(2) = 18.25$

$H = \frac{7.25 + 10.75}{2 \times 12} = 0.75$

$H^{2/3} = .83$

$Q = \frac{(3)(18.25)(.83)}{2} = 22.60$ cfs

$Q_{TOTAL} = 12.57 + 22.60 = 35.17$ cfs.

Capacity Quadruple C Inlet

Curb Opening $A = 13.5 \times .5 = 6.75$ ft²
$h = .6458$ ft

$Q = (.6)(A)(2gh)^{1/2} = (.6)(6.75)(2 \times .6458 \times 32.16)^{1/2} = 26.10$ cfs

Grate
$L = (2.125 + 10)(2) = 32.25$
$H^{2/3} = .83$

$Q = \frac{(3)(L)(H)^{3/2}}{2} = \frac{(3)(32.25)(.83)}{2} = 40.15$ cfs

$Q_{TOTAL} = 32.25 + 40.15 = 72.40$ cfs.

TOTAL INLET CAPACITY STREET FLOWING CURB FULL

$Q = (6)(10) + 35.17 + 72.40 = 167.57$ cfs

COMP. RFS
CK.
DATE 3 May 79

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3308
ALBUQUERQUE
NEW MEXICO

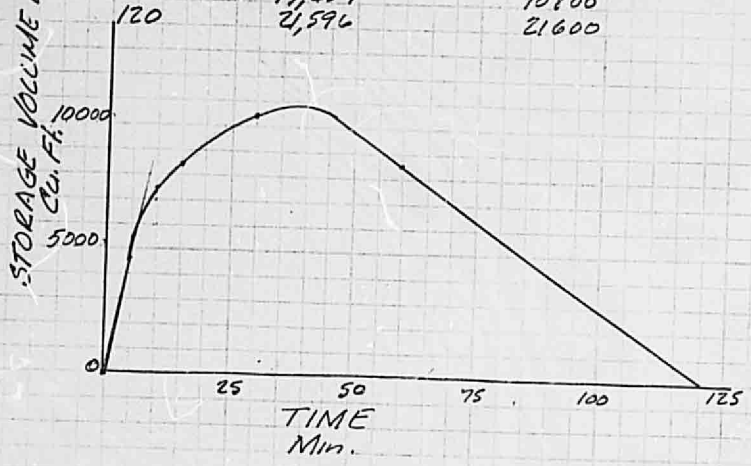
LOC. Albuquerque FILE 79-507A
PROJ. Drain Reef SHEET 4
SUBJ. OF 4

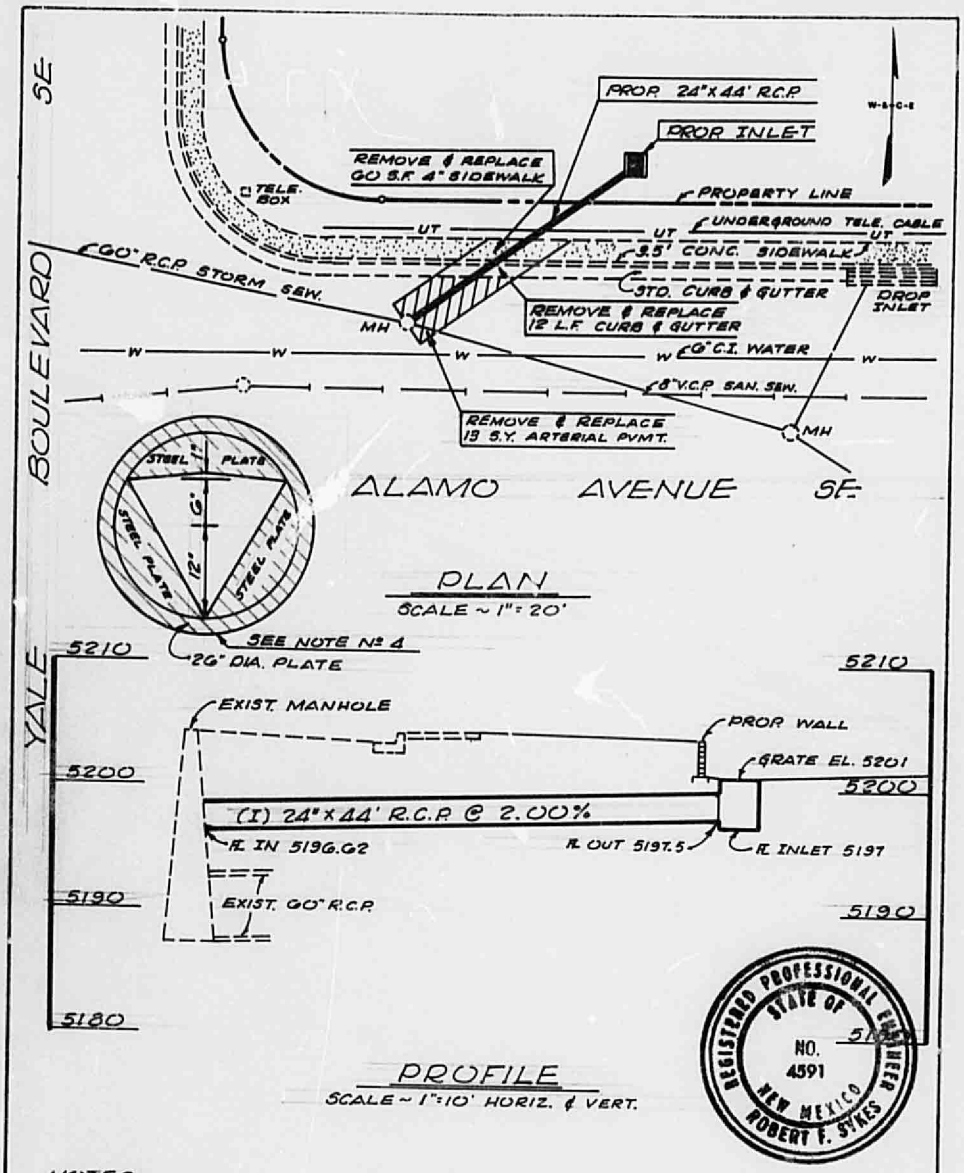
100 Year Rainfall

Time	Inches Rainfall
5 min	0.6
10 min	1.0
15 min	1.2
30 min	1.7
1 hr	2.1
2 hr	2.3
3 hr	2.4
6 hr	2.6
24 hr	3.2

Based on C = 0.85 and an area of 130,680 sq ft and a discharge rate of 3 cfs

Time min	Volume inflow cu. ft	Volume outflow cu ft	Volume storage cu. ft
5	5554	900	4654
10	9257	1800	7457
15	11,108	2700	8408
30	15,736	5400	10336
60	19,439	10800	8639
120	21,596	21600	0





NOTES

1. Contractor to obtain excavation permit from City prior to work in public Right-of-Way.
2. All work to be in accordance to with City Contract for City-Wide Utilities and Cash Paving Nº 28.
3. Location of buried telephone is approximate. Contractor should contact Telephone Company for exact location 765-1234.
4. Contractor will install wier cut to the dimension shown in the bell of the storm sewer at the proposed inlet. Wier to be cut from 1/8" min. steel plate.

WILSON & COMPANY
ENGINEERS ARCHITECTS
ALBUQUERQUE NEW MEXICO

CITY OF ALBUQUERQUE

APPROVALS	ENGINEER	DATE	TITLE: MOTEL @ YALE & ALAMO SE STORM SEWER CONNECTION	
A.C.E. DESIGN				
WATER RESOURCES				
CITY ENGINEER			PROJECT NO.	MAP NO. M-16-Z

79-507 A