HYDROLOGY F18/D18 ONE PLAN

F18-D18

1 PLAN

WILSON & COMPANY
ENGINEERS & ARCHITECTS
P.O. BOX 3805
1921 SAN PEDRO N.E. ■ ALBUQUERQUE, NEW MEXICO 87110
505 255-4350
ENGINEERS
ARCHITECTS
PLANNERS

Bruno —

January 4, 1978

RECEIVED
JAN 06 1978
CITY ENGINEERS

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report Apartments at Waterside

Dear Mr. Kimmick:

Enclosed are two copies of the drainage report for the Apartments at Waterside for your review and comments and approval if found to be satisfactory. This project is located north of the Gallegos and Del Norte High School.

The developer for this project is:

Mr. Robert E. Davis
Cauwels & Davis
1116 Pennsylvania N.E.
Albuquerque, NM 87110

We would be glad to discuss this report with you or your representative at any time.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

cc: Mr. Robert E. Davis

-sp

WILSON & COMPANY
ENGINEERS & ARCHITECTS

P.O. BOX 9305

1921 SAN PEDRO N.E. ▪ ALBUQUERQUE, NEW MEXICO 87110

505 255-4350

ENGINEERS
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PLANNERS

February 1, 1978

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

RECEIVED
FEB 03 1978
CITY ENGINEERS

Re: Drainage Report
Apartments at Waterside Near
San Mateo & Montgomery Blvd.

Dear Mr. Conegliano:

I have investigated the inflow to the channel from McLeod St. to the Elena Gallegos Channel. The capacity of the channel is 108 cfs based on information I received from Ceila Tomlinson. The inflow from Area 1 and Area 2, as shown on attached map is 195 cfs per drainage area or a total inflow of about 390 cfs.

The way the channel from McLeod to Elena Gallegos Channel is constructed, I doubt that the water from Area 1 and Area 2 will enter the channel until it reaches a point south of the proposed San Mateo Lane. Enchantment Engineering is preparing the plans for San Mateo Lane. They will have a water block of 0.67' ± at the point where they connect to the channel from McLeod to Elena Gallegos Channel. I have enclosed the street plan, calculations, drainage map and sketch showing existing conditions at the site.

I do not believe that overflow from channel will enter the property due to the lake and other depressions. The best way to understand the situation would be for us to take a look at it in the field. I would be glad to do this at any time.

Please give me a call if you have any questions.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

cc: Mr. Robert E. Davis

Enclosures

-sp

WILSON & COMPANY
ENGINEERS & ARCHITECTS
P.O. BOX 3305
1321 SAN PEDRO N.E. ■ ALBUQUERQUE, NEW MEXICO 87110
505 255-4950
ENGINEERS
ARCHITECTS
PLANNERS

RECEIVED
FEB 27 1978
CITY ENGINEERS

February 24, 1978

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

Re: Drainage Report
Apartments at Waterside Near
San Mateo & Montgomery Blvd.

Dear Mr. Conegliano:

Enclosed is a map showing the revised drainage area that flow into the channel from McLeod St. to the Elena Gallegos Channel. The capacity of the channel is still 108 cfs. The inflow from Area 1 is 154 cfs and from Area 2 194 cfs for a total inflow of 348 cfs.

Thank you for taking the time to look at this drainage area and helping resolve this matter.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

cc: Mr. Robert E. Davis

Enclosures

-sp

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

February 27, 1978

Robert F. Sykes
Wilson Co.
1321 San Pedro NE
Albuquerque, NM 87110

RE: Drainage Report for Apartments @ Waterside Near San Mateo & Montgomery Blvd.

Dear Mr. Skyes:

Please be advised that the drainage report for the captioned apartment has been reviewed and is approved in concept. The construction plans will have to include a detailed site grading plan to show that the drainage report concept have been incorporated.

Very truly yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

BC/gm

cc; V.M. Kimmick
Drainage file

WILSON & COMPANY
ENGINEERS & ARCHITECTS

262-2116
505 ~~256-4550~~

ENGINEERS
ARCHITECTS
PLANNERS

Office Location... 1321 SAN PEDRO N.E. ■ ALBUQUERQUE, NEW MEXICO 87110 ■ An Equal Opportunity Employer

Mailing Address... P.O. BOX 2905 ■ ALBUQUERQUE, NEW MEXICO 87190

December 19, 1979

Mr. Fred Aguirre
Assistant Hydrology Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Apartments at Waterside
Cauwels & Davis

Dear Mr. Aguirre:

We have surveyed and inspected the Phase I and Phase II portion of the Apartments at Waterside. There have been changes made from the original grading plan but we feel the as built condition is in substantial compliance with the approved grading plan.

The enclosed print shows the as built condition for Phase I and Phase II of the development.

By this letter I certify that the Phase I and Phase II portion of the Apartments at Waterside is in substantial compliance with the approved drainage plan.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

cc: Bob Davis
Cauwels & Davis

Enclosure

-sp

APPROVED FOR DRAINAGE

12-19-79
DATE

SIGNATURE TITLE

ADVISE DRAINAGE INSPECTOR
WHEN GRADING EXECUTED

ENGINEER'S DRAINAGE REPORT

FOR

APARTMENTS AT WATERSIDE

ALBUQUERQUE, NEW MEXICO

NEAR

SAN MATEO BLVD. AND MONTGOMERY BLVD.

WILSON & COMPANY

ENGINEERS & ARCHITECTS

1321 SAN PEDRO N.E.

ALBUQUERQUE, NEW MEXICO

JANUARY 1978

(77-534)

WILSON & COMPANY
ENGINEERS & ARCHITECTS

ENGINEER'S DRAINAGE REPORT
for
APARTMENTS AT WATERSIDE
ALBUQUERQUE, NEW MEXICO

LOCATION: Apartments at Waterside are to be constructed in two phases on a 10.5 acre tract in the Elena Gallegos Subdivision No. 1 which is located east of San Mateo Blvd. and north of Del Norte High School. The exact location is shown on the attached copy Zone Atlas Map F-18.

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

DISCUSSION:

Phase 1: Phase 1 is located east and south of proposed San Mateo Lane and contains 5.05 acres of land.

It is proposed to drain the east, south, west parking areas and the east tennis court to the paved Elena Gallegos drain that bounds the Phase 1 tract on the south. The north parking lot will be drained to San Mateo Lane. Run-off from the remaining areas will be contained on site. The roof drainage from Units 1, 2 and 3 and the Clubhouse will be discharged to the interior pond. Also, the west tennis court will be drained to the interior pond. The landscaped areas adjacent to the pond and the swimming pool deck will be drained to the pond. All other landscaped areas will be depressed so as to retain all rainfall.

The run-off from Phase 1 area as an undeveloped tract, based upon 6 hour, 100 year rainfall is 19,065 cu.ft. The run-off from the proposed Phase 1 improvements is 18,812 cu.ft. based on 6 hour, 100 year design rainfall. The volume of contained rainfall from 6 hour, 100 year storm is 26,280 cu.ft.

It is recommended that the pond and surrounding landscaped area provide a minimum storage capacity of 18,700 cu.ft. and that all other landscaped areas

be depressed a minimum of 2½ inches.

Phase 2: Phase 2 is located north of proposed San Mateo Lane and contains 5.45 acres of land.

It is proposed to drain all the parking lots and the roof of Unit 5 to San Mateo Lane. The drainage from Units 4, 6, 7 and 8, sidewalks and landscaped areas will be contained. The roof drainage from Units 4 and 6 will be discharged to the interior pond. The interior pond will also store run-off from adjacent sidewalks. Roof drainage from Units 7 and 8 will be stored in pond to the northeast of these units. The northeast pond will also be used to store run-off from adjacent landscaped area, pool deck and sidewalk. All other landscaped areas will be depressed so as to retain all rainfall.

The run-off from Phase 2 area as an undeveloped tract, based on 6 hour, 100 year rainfall is 20,575 cu.ft. The run-off from the proposed Phase 2 improvements is 20,414 cu.ft. The volume of contained rainfall from 6 hour, 100 year rainfall, is 26,323 cu.ft.

It is recommended that the interior pond at Units 4, 5, and 6 provide a minimum storage capacity 8,500 cu.ft. and the northeast pond provide a minimum storage capacity of 8,900 cu.ft. All other landscaped areas in Phase 2 be depressed a minimum of 2½ inches.

It is also recommended that all the ponds be provided with an overflow pipe to prevent any serious property damage. The elevation of the inlet of the overflow pipes should be such as to provide required storage capacity before an overflow occurs.

The following material has been attached as a part of this report:

1. Location Map
2. Site Plan
3. Engineer's Computations.

Z-_____

I certify that this area is zoned SU-1 and this plan is consistent with the specific development plan approved by the Environmental Planning Commission on _____, 19___

_____
Planning Director Date

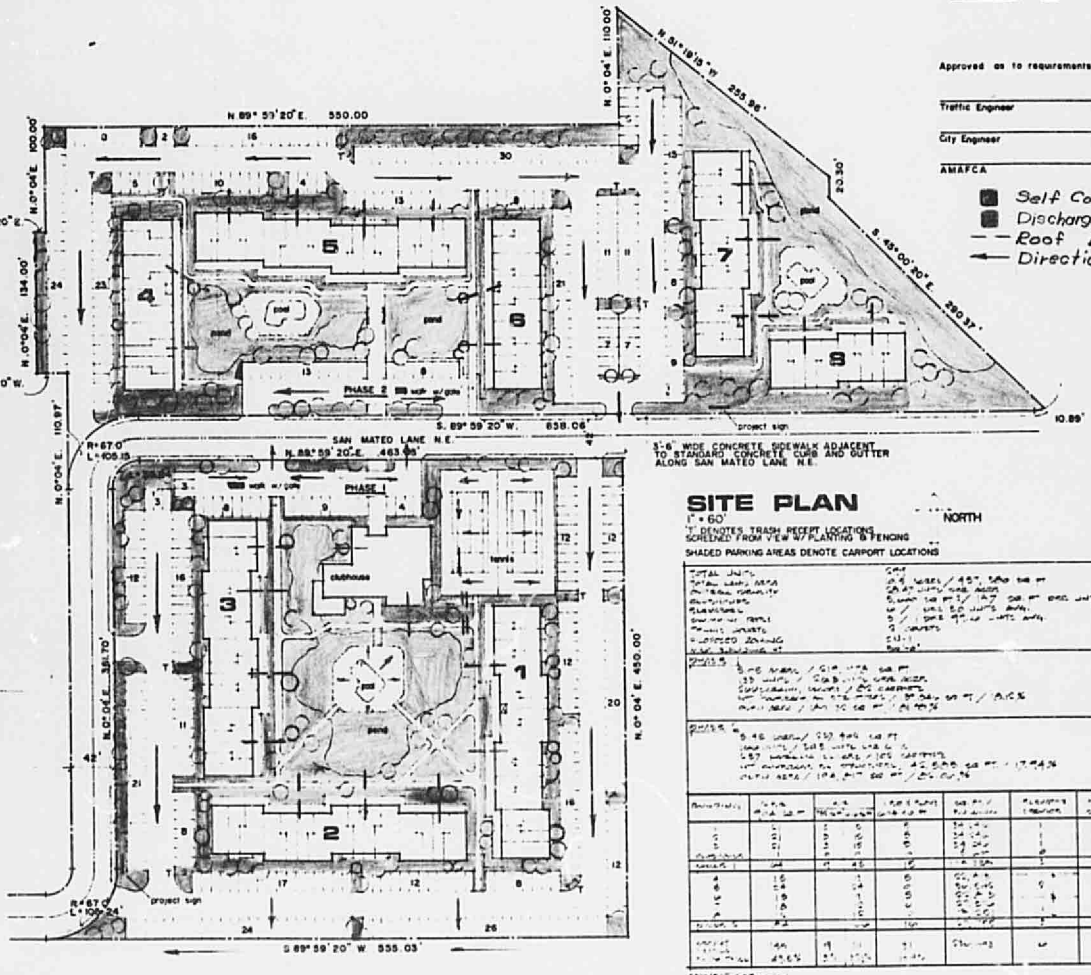
Approved as to requirements:

_____
Traffic Engineer Date

_____
City Engineer Date

_____
AMAFCA Date

■ Self Contained Landscape Areas
■ Discharge Containment Area
- - Roof Drains
← Direction of Drainage



SITE PLAN

1" = 60'

NORTH

"T" DENOTES TRASH RECEPT LOCATIONS
SCREENED FROM VIEW W/PLANTING & FENCING

SHADED PARKING AREAS DENOTE CARPORT LOCATIONS

TOTAL UNITS	[illegible]
TOTAL LAND AREA	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

PHASE 1

[illegible]

PHASE 2

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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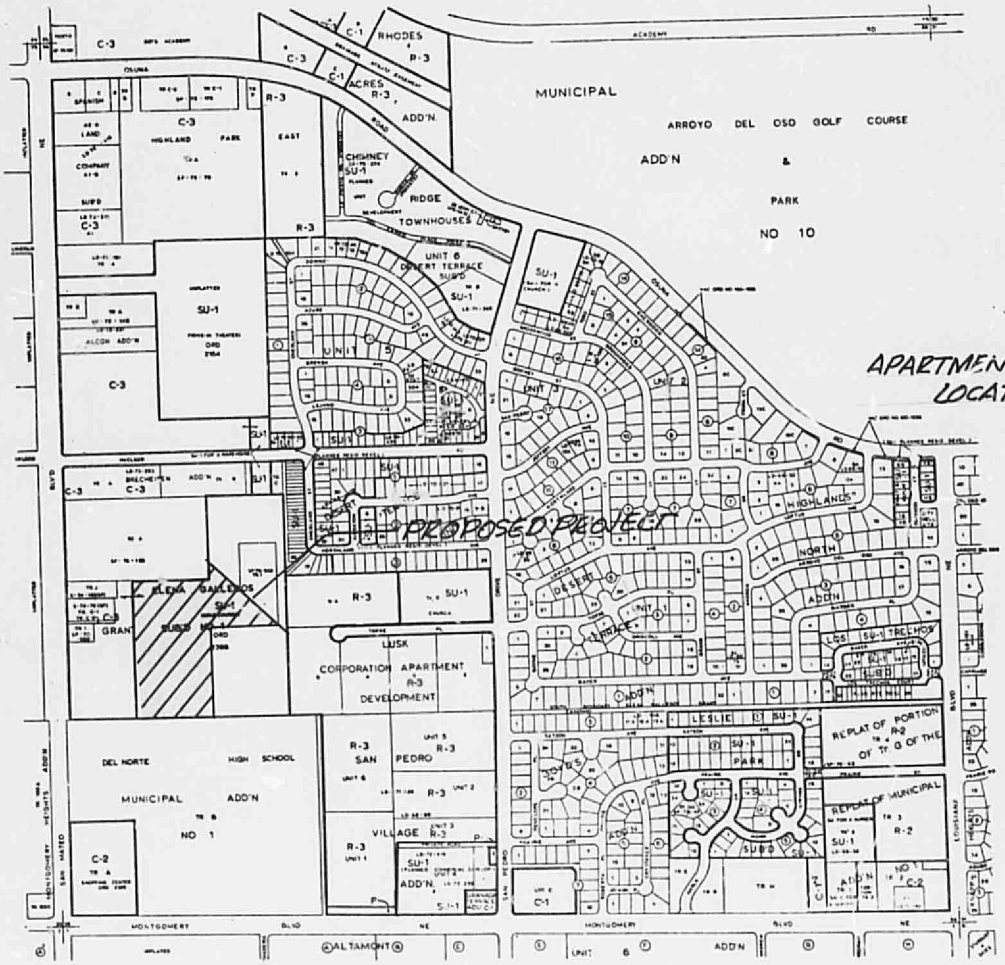


APARTMENTS AT WATERSIDE
LOCATION MAP

F-18-Z

COMP. R.A. Meyers
CK. R.F. Sykes
DATE 21 Dec 1977

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3305
ALBUQUERQUE
NEW MEXICO

LOC. Albuquerque NM FILE 77-530
PROJ. Apartments at Waterside SHEET 1
SUBJ. Drainage Report OF

Phase I Area = 5.05Ac developed as follows

Paved Parking	=	83,549 sq ft.
Roof	=	48,540
Sidewalk & Pool Deck	=	11,670
Tennis Courts	=	13,200
Pond	=	15,300
Landscape		47,719
Total	=	219,978 sq.ft.

Phase II Area = 5.45 Ac developed as follows

Paved Parking	=	83,929 sq.ft.
Roof	=	51,379
Sidewalk & Pool Decks	=	13,145
Pond		21,080
Landscape		67,909
Total	=	237,402 sq. ft.

PHASE I

Undeveloped Runoff

Area = 5.05 Ac = 219,978 Sq ft. Run-off factor = 0.40

6 Hr, 100 yr rainfall = 2.6 inches

Run-off Volume = 219,978 x 2.6 x 1/12 x .40 = 19,065 Cu Ft.

Developed Run off

Run-off factors

C = 0.95 Roofs, Sidewalk & Parking

C = 0.40 Landscape

C = 0.00 Ponds.

Parking	Vol. =	83,549 x 2.6 x 1/12 x .95 =	17,197 Cu.ft.
Roof	Vol =	48,540 x 2.6 x 1/12 x .95 =	9,991
Sidewalk	Vol =	11,670 x 2.6 x 1/12 x .95 =	2,402
Tennis Cts.	Vol =	13,200 x 2.6 x 1/12 x .95 =	2,717
Pond	Vol =	15,300 x 2.6 x 1/12 x 0 =	0
Landscape	Vol =	47,719 x 2.6 x 1/12 x .40 =	4,136
	TOTAL		36,443 Cu ft.

COMP. R.A. Meyer
CK. R.F. Sykes
DATE 21 Dec 1977

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3305
ALBUQUERQUE
NEW MEXICO

Albuquerque, NM FILE 77-534
PROJ. Apts @ Waterside SHEET 2
SUBJ. Drainage Report OF

Phase I (Continued)

Volume To Be Discharged.

Parking Lots = 83,549 x 2.6 x 1/12 x .95 = 17,197 cu. ft.
E 1/2 Tennis Court = 6,600 x 2.6 x 1/12 x .95 = 1,358
*Sidewalk 1,250 x 2.6 x 1/12 x .95 = 257
Total To Be Discharged 18,812 cu ft < 19,065 cu ft.

Storage Volume Reqd. in Pond Area.

Roofs = 48,540 x 2.6 x 1/12 x .95 = 9,991 cu. ft.
W 1/2 Tennis Ct. = 6,600 x 2.6 x 1/12 x .95 = 1,358
Sidewalk & Pool Deck = 10,420 x 2.6 x 1/12 x .95 = 2,145
Pond & Adjacent Landscape = 25,200 x 2.6 x 1/12 x .95 = 5,187
18,681 Use 18,700 cu ft

Storage Volume Reqd. in other Landscape Areas

Landscape = 36,919 x 2.6 x 1/12 x .95 = 7,599 cu. ft.

TOTAL VOLUME STORED = 26,280 Cu Ft.

PHASE II

Undeveloped Run-off
Area 5.45 Acres = 237,402 Sq. ft.
Run-off Factor = 0.40
6 Hr. 100 yr rainfall = 2.6 inches
Run-off Volume = 237,402 x 2.6 x 1/12 x 0.40 = 20,575 cu. ft.

Developed Run-off
Pavement, Roofs & Sidewalk C = 0.95
Landscape C = 0.40
Ponds C = 0.00

Parking Vol = 83,929 x 2.6 x 1/12 x .95 = 17,275 cu. ft.
Roof Vol = 51,379 x 2.6 x 1/12 x .95 = 10,576
Sidewalks & Pool Deck = 13,145 x 2.6 x 1/12 x .95 = 2,706
Pond = 21,040 x 2.6 x 1/12 x .00 = 0
Landscape = 67,909 x 2.6 x 1/12 x .40 = 5885
TOTAL 36,442 cu ft.

COMP. R.A. Meyer
CK. R.F. Sykes
DATE 21 Dec 1977

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3305
ALBUQUERQUE
NEW MEXICO

LOC. Albuquerque, NM FILE 77-534
PROJ. Apts @ Waterside SHEET 3
SUBJ. Drainage Report OF

Phase 2 (Cont.)

Volume to be Discharged to San Mate Lane

Parking Lots:	83929 x 2.6 x 1/12 x .95	=	17,275 cu.ft.
Roof Unit 5 =	14,579 x 2.6 x 1/12 x .95	=	3001
Sidewalk =	670 x 2.6 x 1/12 x .95	=	138
			20,414 < 20,575

Volume Storage Reqd. Interior Pond at Units 4,5 & 6

Roof Units 4 & 6 =	18,488 x 2.6 x 1/12 x .95	=	3805 cu ft
Sidewalk & Pool Deck =	7,340 x 2.6 x 1/12 x .95	=	1511
Pond & Adjacent Landscape	15,120 x 2.6 x 1/12 x .95	=	3,112
	Storage Reqd		8,428 cu.ft.

Volume Storage Reqd Pond NE of Units 7 & 8

Roof Units 7 & 8 =	18,312 x 2.6 x 1/12 x .95	=	3,769 cu.ft.
Sidewalk & Pool Deck =	5,135 x 2.6 x 1/12 x .75	=	1,057
Landscape Area	16,200 x 2.6 x 1/12 x .40	=	1404
Pond	12,240 x 2.6 x 1/12 x 1.00	=	2652
	Volume Storage Reqd.		8,882 cu.ft.

Remaing Landscape Area to Contain Rainfall

V = 43,789 x 2.6 x 1/12 x .95 = 9,013 cu ft.

TOTAL VOLUME STORED = 26,323 cu ft.

COMP. R.F. Sykes.

CK.

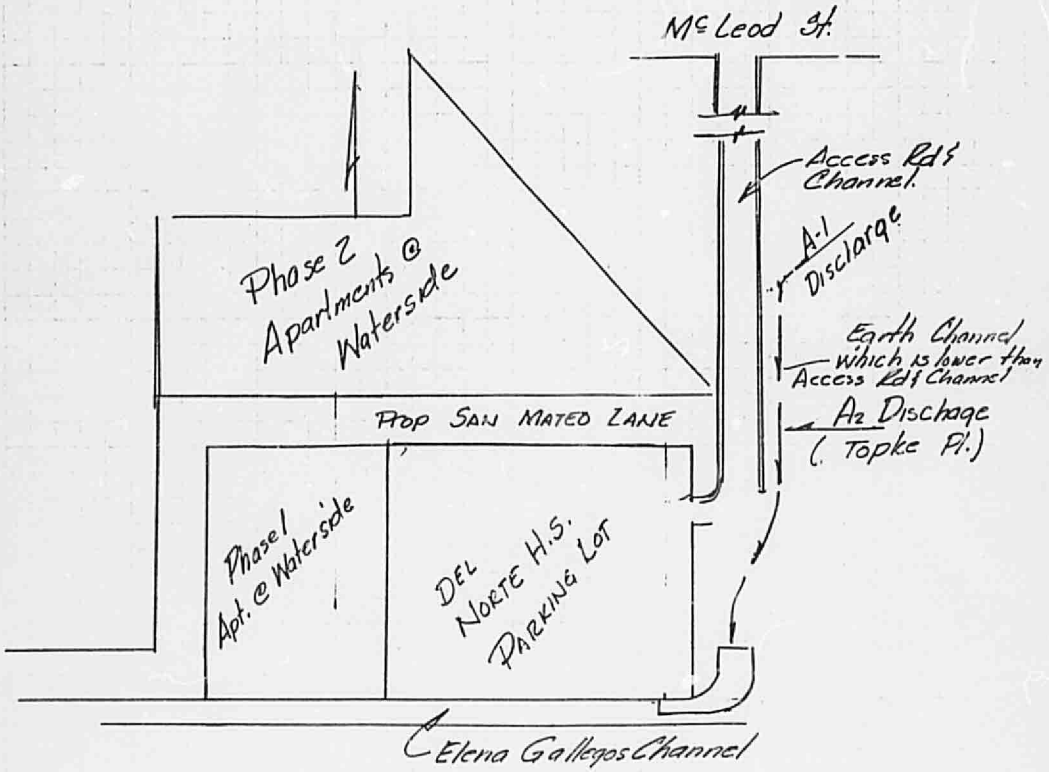
DATE 1 Feb 78

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3305
ALBUQUERQUE
NEW MEXICO

LOC. Albuquerque NM FILE 77-534

PROJ Apts @ Waterside SHEET

SUBJ Drainage Report (Supplement) OF

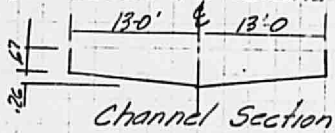


COMP. R.F. Sykes
CK.
DATE 1 Feb 78

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3305
ALBUQUERQUE
NEW MEX'CO

LOC. Albuquerque NM FILE 77-534
PROJ. Apts @ Waterside SHEET
SUBJ. Drainage Rept (Supplement) OF

Capacity Channel
From McLeod to Elena Gallegos Grant Channel



Channel Section

Area = (26 x .67) + (13 x .26) = 17.42 + 3.38 = 20.8 ft²
Wetted Perimeter = 27.34'

$R = \frac{A}{WP} = \frac{20.8}{27.34} = .7607$

Slope = .004 (City Info.) Plan Slope = .01

$V = \frac{1.486}{.015}(.7607)^{2/3}(.004)^{1/2} = 5.22$ ft/sec

Q = AV = (20.8)(5.22) = 108.6 ft³/sec

Inflow from east

Area 1 = 77.4 Ac t_c = 20 min C = 0.60

$i = \frac{189}{t_c + 25} = \frac{189}{20+25} = 4.2$

Q = CiA = .60 x 4.2 x 77.4 = 195 cfs

Area 2 = 77.1 Ac t_c = 20 min C = 0.60

i = 4.2

Q = CiA = .60 x 4.2 x 77.1 = 194 cfs

COMP. R.F. Sykes

CK.

DATE 24 Feb 1978

WILSON & COMPANY
ENGINEERS & ARCHITECTS
BOX 3305
ALBUQUERQUE
NEW MEXICO

LOC. Albuquerque. FILE 77-534

PROJ. Apts @ Waterside SHEET

SUBJ. Drainage Report (Supplement #2) OF

Inflow To Channel along West side Desert Terrace - Unit 4
Map F-18

Revised Drainage Area

Area No A-1

$A = 61.1$ Ac $t_c = 20$ min $C = 0.60$

$i = \frac{189}{t_c + 25} = \frac{189}{20+25} = 4.2$

$Q = CiA = .60 \times 4.2 \times 61.1 = 154.0$

Area No A-2

$A = 77.1$ Ac $t_c = 20$ min $C = 0.60$

$Q = CiA = .60 \times 4.2 \times 77.1 = 194.3$ cfs.

TOTAL INFLOW = 154 + 194 = 348 cfs