F18-D8

2 PLANS

BRYAN BECKER AND ASSOCIATES – ARCHITECTS

8730 King Geo..ge Drive, Room 111 • Dallas, Texas 75235 • Telephone 214-630-2180

January 16, 1974

RECEIVED
JAN 21 1974
CITY ENGINEERS

Mr. V. N. Kimmick
City Engineer
Fourth Floor
City Hall
Albuquerque, New Mexico

RE: Osuna Apartments

Dear Mr. Kimmick:

Enclosed are copies of Drawings CE-1, CE-2, dated December 3, 1973, and Engineer's Drainage Report, dated June 1973, for the above job, all prepared by Wilson and Company, for your review.

Mr. Robert Sykes of Wilson and Company reviewed these with Mr. John Roberts in their preliminary form.

I plan to be in Albuquerque some time next week and will take CE-1 and CE-2 tracings for Mr. Roberts' signature. On that same day, after Mr. Roberts has approved and signed the tracings, I would like to bring them by your department for approval and signature.

A Mr. Don Campbell, who I understand is no longer in your department, has already reviewed the enclosed drainage report, and I believe approved it and was holding it in his file for formal submission of the drainage plans for signature.

If you have any questions about the drainage, please contact Mr. Sykes, who in turn will call me.

Very truly yours,

BRYAN BECKER AND ASSOCIATES

Bryan Becker

Bryan Becker

BB:a

cc: Mr. Robert Sykes
cc: Mr. Sherman Jorgenson
cc: Mr. John Roberts

ENGINEER'S DRAINAGE REPORT

FOR

APARTMENT COMPLEX ON TRACT 2 HIGHLAND PARK EAST

ON OSUNA ROAD NE

ALBUQUERQUE, NEW MEXICO

APPROVED FOR DRAINAGE

24 Jan 74

SIGNATURE _____ TITLE ACE

CONTINGENCIES _____

_____

_____

WILSON & COMPANY

ALBUQUERQUE, NEW MEXICO

JUNE 1973

ENGINEER'S DRAINAGE REPORT
FOR
APARTMENT COMPLEX ON TRACT 2 HIGHLAND PARK EAST
ON OSUNA ROAD NE
ALBUQUERQUE, NEW MEXICO

PURPOSE: The purpose of this report is to analyze the amount of run-off entering the study area and the flow capacity of existing streets of drainage facilities.

CLIMATOLOGICAL INFORMATION: A 100 year design frequency has been used to calculate the flow. The City of Albuquerque had adopted a drainage master plan which presents the following formula for calculating the intensity of rainfall that is probable for a 100 year design storm:

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

i_{100} = Rainfall intensity inches per hour

t_c = Time of concentration in minutes

RUN-OFF CALCULATION: The Rational Method was used to calculate the run-off from the study area. The Rational Formula is:

$Q = CiA$

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

C = Coefficient of run-off expressed in a ratio of rainfall to run-off

i = Rainfall intensity expressed in inches per hour

A = Drainage area expressed in acres

DISCUSSION: The drainage from 21 acres of Desert Terrace Subdivision Unit 5 discharges across the southwest corner of Tract 2, Highland Park East into a 36-inch pipe along the south boundary of Tract 1, Highland Park East. The calculated 100 year discharge from Desert Terrace Subdivision is 59 c.f.s. The 36-inch pipe requires a headwater depth of 4.5 feet in order to discharge 60 c.f.s.

At the present time, the property to the east is being developed and has been site graded. The grading is lower than the project area and is graded to drain northeast,and therefore, there is not any drainage entering from the east.

There is a cattle guard inlet in a sag vertical curve on Osuna Road at the southwest corner of Arroyo Del Oso Golf Course. The inlet discharges to Arroyo Del Oso and when the flow exceeds 40 c.f.s. the water tops the north curb and flows overland to the arroyo.

From the crest in Osuna Road to the northwest corner of Tract 2, Highland Park East, the drainage area is 16 acres and the calculated 100 year flow is 66 c.f.s. At the northwest corner of said Tract 2, there are two Double C inlets, which discharge to Arroyo Del Oso. The capacity of the discharge pipe is 35 c.f.s. The capacity of Osuna Road flowing curb full is 148 c.f.s.

From the crest in Osuna Road to the intersection of Osuna Road and San Mateo Blvd., the drainage area is 40 acres and calculated 100 year flow is 151 c.f.s., of which 35 c.f.s. has been diverted by the Double C inlets leaving a design flow of 116 c.f.s. The minimum capacity of Osuna Road flowing curb full is 148 c.f.s. These flows have been calculated using a C factor of 0.90 for all undeveloped land.

At the present time, the flow from the intersection of Osuna Road and San Mateo Blvd. flows north in a roadside ditch along the east side of San Mateo Blvd. to Arroyo Del Oso.

RECOMMENDATIONS: It is planned to use the south 260 feet of the tract as a play area. It is recommended that this area be graded to discharge to the 36-inch culvert pipe at the southwest corner of the tract. The south end of the development should be at an elevation at least five feet above the flowline elevation of the 36-inch culvert pipe.

The north portion or the developed portion of property, approximately 5.2 acres,

should be graded to drain north and south, with as much as possible graded south to the play area, still maintaining an elevation at least five feet above the flowline elevation of the 36-inch culvert pipe. The two Double C inlets at the northwest corner of the property will intercept the flow and discharge it to Arroyo Del Oso until the flow in Osuna Road exceeds 35 c.f.s.

The grassed or open areas around the buildings should be graded to retain water to a depth of 1 to 3 inches center of the open space. Positive drainage should be maintained so water will not be ponded near the footings of the structures.

The following design criteria should be used for calculating on site run-off:

C = 0.90

t_c = 10 minutes

COMP. _____ CK. _____ DATE _____

WILSON & COMPANY ENGINEERS & ARCHITECTS BOX 29 SALINA KANSAS

LOC _____ FILE _____ PROJ _____ SHEET _____ SUBJ _____ OF _____

DESERT TERRACE UNITS DISCHARGE

Area = 21 Acres

C = 0.65 Residential Area

tc = 19 min.

$i_{100} = \frac{189}{tc+25} = \frac{189}{44} = 4.3$ C = .65 Residential

$Q_{100} = CiA$

$Q_{100} = .65 \times 4.3 \times 21 = 59$ cfs.

EXISTING 36" RCP Acts as a culvert with inlet control:

For 60 cfw Headwater Depth = 3 x 1.5 = 4.5 ft.

DISCHARGE FROM PROJECT AREA PLUS AREA TO EAST.

Area = 16 Acres

tc = 16 min

$i_{100} = \frac{189}{tc+25} = \frac{189}{16+25} = 4.6$

C = .90 (APARTMENTS)

$Q_{100} = CiA = .9 \times 4.6 \times 16 = 66$ cfs.

W C & FORM 168

COMP.
CK.
DATE

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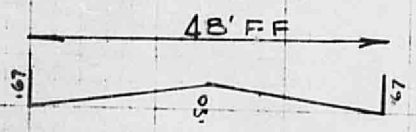
ENGINEERS | ARCHITECTS
SALINA KANSAS

LOC. FILE
PROJ. SHEET
SUBJ. OF

OSUNA ROAD CAPACITY



AREA = (.17 x 48) + (.5 x 24) = 20.16 ft²

WP = 41.33 ft

$R = \frac{A}{WP} = \frac{20.16}{41.33} = .49$

$R^{2/3} = .62$

slope = .0146 ft/ft

n = .015

$V = \frac{1.486}{.015} \times .62 \times .12 = 7.37$ ft/sec

Q cap = 7.37 x 20.16 = 148 cfs.

Q DESIGN

Area = 40 Ac.

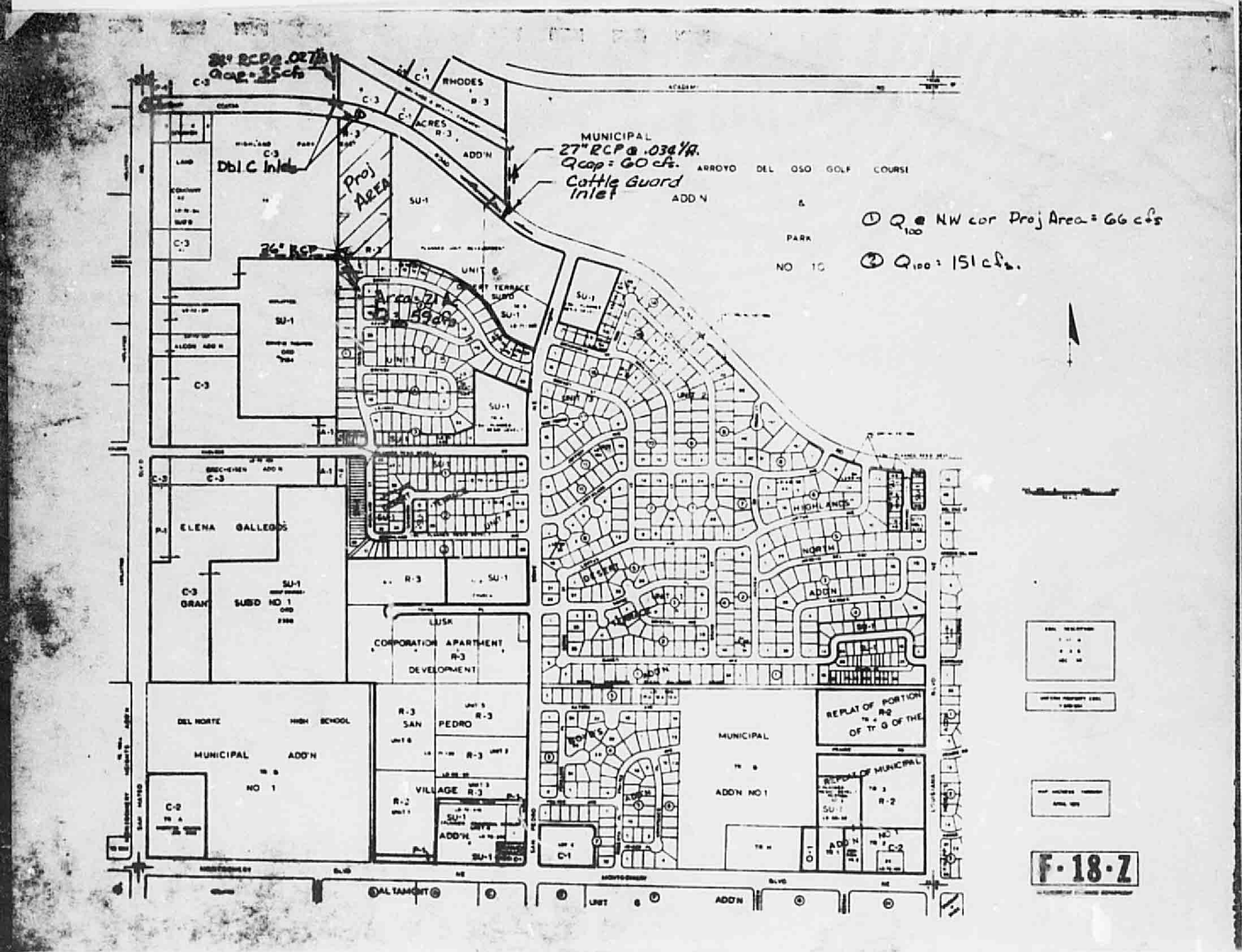
t_c = 20 min

$i_{100} = \frac{189}{20+25} = \frac{189}{45} = 4.2$

C = .90

$Q_{100} = 40 \times .9 \times 4.2 = 151$ cfs − 35 cfs (inlets) = 116 cfs

The Capacity of Osuna @ San Mateo is not exceeded


MUNICIPAL
27" RCP @ .034 %.
Qcap = 60 cfs.
Cattle Guard Inlet
Dbl C Inlet
Proj Area
Area = 21 AC
Q = 89 cfs
ARROYO DEL OSO GOLF COURSE
ADD'N
PARK
NO 10
① Q100 @ NW cor Proj Area = 66 cfs
② Q100 = 151 cfs.
RHODES
ACRES
ADD'N
UNIT 6
SU-1
C-3
R-3
ELENA GALLEGOS
LUSK
CORPORATION APARTMENT
DEVELOPMENT
DEL NORTE HIGH SCHOOL
MUNICIPAL ADD'N NO 1
SAN PEDRO
VILLAGE
HIGHLANDS
NORTH
REPLAT OF PORTION
OF TR G OF THE
REPLAT OF MUNICIPAL
MUNICIPAL
ADD'N NO 1
MONTE VISTA BLVD
LOMAS BLVD
UNIT 6 ADD'N
F-18-Z