K19/D3

1 Plan

ENGINEER'S DRAINAGE REPORT

FOR

4 - PLEX COMPLEX

LOTS 5 THRU 16, BLOCK 2

UNITY ADDITION

ALBUQUERQUE, NEW MEXICO

RECEIVED
JAN 29 1980
CITY ENGINEER

WILSON & COMPANY
ENGINEERS & ARCHITECTS
1321 SAN PEDRO NE
ALBUQUERQUE, NEW MEXICO

JANUARY 1980
(80-502)

WILSON & COMPANY ENGINEERS ARCHITECTS

ENGINEER'S DRAINAGE REPORT

For

4 - PLEX COMPLEX

BLOCK 2, UNITY ADDITION

ALBUQUERQUE, NEW MEXICO

LOCATION: A twelve unit 4-plex development is proposed for Lots 5 thru 16, Block 2, Unity Addition. This is on the north side of Zuni Road S.E. between Rhode Island Street and Tennessee Street. The location is shown on the attached Zone Atlas Map K-19.

DEVELOPER: Rymar Enterprises, Inc.
125 Eubank Blvd., N.E.
Albuquerque, NM 87123
Telephone: 298-5573

DESIGN CRITERIA: The six hour, 100 year rainfall value of 2.6 inches is used for computing run-off volumes. The assumed percolation rate for natural landscaping is 0.0017 ft/minute.

DISCUSSION: Each lot is 50 ft. by 135 ft. and each 4-plex unit is of the same size with same parking area configuration; thus, the calculations are based on one lot. There will be a fence or a wall between each lot thus it will not be advisable to use a common ponding area for all 12 units.

The undeveloped run-off for 24 hour period is 720 cu.ft. The maximum discharge rate undeveloped is 0.70 cfs for two lots back to back.

The proposed drainage plan is as follows:

1. Parking lot, sidewalk and balcony will have uncontrolled run-off. The 24 hour run-off is 532 cu.ft. The allowable is 720 cu.ft.

2. The roof will act as a retention pond and the run-off will be controlled by a Zern roof drain.

3. The landscaped areas will act as detention ponds. There will be two ponding areas per lot.

The back pond will have a bottom surface area of 300 square feet. The depth required for southwest landscaping without percolation is 1 ft. The depth required with percolation is 0.57 ft.

The front pond will have a bottom surface area of 550 square feet. The depth required for southwest landscaping without percolation is 0.89 ft. The depth required with percolation is 0.49 ft.

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

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

LOCATION MAP
K-19-Z
PROJECT LOCATION
STATE FAIR GROUNDS
GLOBE SUBD.
ROBIN SUBD.
ROBIN
ROBIN CIR.
ROBIN CT.
ROBIN DR.
ROBIN LN.
ROBIN PL.
ROBIN WAY
SEQUOIA ADDN.
SEQUOIA ADDN. NO. 2
SEQUOIA ADDN. NO. 3
SEQUOIA ADDN. NO. 4
SEQUOIA ADDN. NO. 5
SEQUOIA ADDN. NO. 6
SEQUOIA ADDN. NO. 7
SEQUOIA ADDN. NO. 8
SEQUOIA ADDN. NO. 9
SEQUOIA ADDN. NO. 10
SEQUOIA ADDN. NO. 11
SEQUOIA ADDN. NO.

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NEW MEXICO

COMP. CK. DATE

LOC. FILE
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Lots 5 Thru 16, Block 2, Unity Addn.

Data used 100yr rainfall = 2.6 in / 6 Hrs

Time (min)	Rainfall (inches)	Intensity (inches/hr)
5	0.61	7.32
10	0.94	5.64
15	1.19	4.76
30	1.65	3.30
60 (1)	2.09	2.09
120 (2)	2.27	1.14
180 (3)	2.38	0.79
360 (6)	2.60	0.43
1440 (24)	3.20	0.13

Since all lots are 50' x 135' - The calculations will be for one lot or pair of lots.

Runoff Undeveloped (24 Hr)

C = 0.40

$$Vol = (50)(135)(3.2)\left(\frac{1}{12}\right) \times 0.4 = 720 \text{ cu.ft.}$$

Allowable Discharge Rate - Consider 2 lots back to back - since slope is east to west

Slope = 1.2%

Overland velocity = 1 ft/sec (SCS chart)

$$t_c = 5 + \frac{300}{1 \times 60} = 10 \text{ min}$$

$$Q = CiA = C = 0.4 \quad i = 5.64 \quad A = \frac{50 \times 270}{43560} = 0.31$$

$$Q = 0.4 \times 5.64 \times 0.31 = 0.70 \text{ cfs / 2 Lots}$$

For Design Assume

1. Parking, Sidewalk & Balcony runoff will be uncontrolled
2. Roof will act as detention pond with controlled runoff rate to street.
3. Front & back landscape areas will act as detention ponds.

Assumption 1.
Parking, Sidewalk & Balcony Area = 2100 ft²

Runoff Vol. = $2100 \times \frac{3.2}{12} \times .95 = 532 ft^3$

$532 < 720$

∴ Assumption No.1 is ok ←

Assumption 2
Roof will act as a detention pond by use of 9 2cm roof drain which will control the runoff rate.
Roof Area = 1690 ft²

24 Hr Vol. = $\frac{1690 \times 3.2}{12} = 450 ft^3$

Q rate for 24 Hrs = $\frac{450}{24 \times 60 \times 60} = .005$ cfs

Assumption 3.
Calculate depth of detention pond for 2 condition
1. Southwest landscape with zero percolation
2. Turf landscape with 0.0017 ft/min percolation rate

Back Pond
Bottom Area = $10' \times 30' = 300 ft^2$
Drainage Area = $1120 ft^2$

Condition 1. 24 Hr Runoff. $1120 \times \frac{3.2}{12} = 299 ft^3$
Depth = $\frac{299}{300} = 1 ft^2$

Condition 2

Time (min)	(hr)	Rainfall (in.)	Runoff (ft^3)	Percolation (ft^3)	Storage Vol Reqd (ft^3)
5		0.61	57	2	55
10		0.90	88	5	83
15		1.19	111	8	103
30		1.65	154	15	139
60	1	2.09	195	30	165
120	2	2.27	212	61	151
180	3	2.38	222	92	130
360	6	2.60	243	184	59

COMP. _____ CK. _____ DATE _____

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Condition 2 (Cont.)
Max Storage = 170 ft³
Depth = $\frac{170}{300}$ = 0.57 ft.

Front Pond
Bottom Area = 10 x 55 = 550 ft²
Drainage Area = 1840 ft²

Condition 1
24 Hr Runoff = $1840 \times \frac{3.2}{12}$ = 491 ft³
Depth = $\frac{491}{550}$ = 0.89 ft.

Condition 2.

Time (Min)	(Hr)	Rainfall (In)	Runoff (ft³)	Percolation (ft³)	Storage Vol (ft³)	Depth
5		0.61	94	5	89	
10		0.94	144	9	135	
15		1.19	182	14	168	
30		1.65	253	28	224	
60	1	2.09	320	56	264	
120	2	2.27	348	112	236	
180	3	2.38	365	168	197	
360	6	2.60	399	336	63	

Depth = $\frac{270}{550}$ = 0.49 ft

WILSON & COMPANY
ENGINEERS & ARCHITECTS

505 262-2116

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

Mailing Address... P.O. BOX 3805 ■ ALBUQUERQUE, NEW MEXICO 87190

ENGINEERS
ARCHITECTS
PLANNERS

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K19-D3

May 22, 1980

RECEIVED
MAY 23 1980
CITY ENGINEER

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

Re: Rymar Enterprises, Inc.
Fourplexes Lots 5 thru 10
Block 2, Unity Addition

Dear Mr. Aguirre:

We have surveyed the above sites and the red numbers on the attached print indicate the actual elevations as they were on May 20, 1980.

Since Wilson & Company did not set grades for the builder, we have no explanation why the grades are not those shown on our plan sheet.

The minimum depth of ponding for the rear ponds is 0.8 ft. The required depth with percolation is 0.57 ft. The minimum required depth of ponding for the front ponds is 0.49 ft. The minimum depth provided is 0.4 ft.

I do believe the project is in substantial compliance with the Engineer's drainage report dated January 1980 and complies with the requirements of the City.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

cc: Rymar Enterprises, Inc.

Attachment

-sp

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

February 13, 1980

Mr. Bob Sykes
Wilson & Company
1321 San Pedro N.E.
Albuquerque, New Mexico

Reference: Drainage Report for Unity Addition

Dear Mr. Sykes:

I have reviewed the drainage plan for the reference development; while the proposed submitted is in full compliance with City and AMAFCA requirements, I would like to make some recommendations that may prove beneficial to the present and possible future owners of the quadruplexes.

In the first place, I believe that it would be desirable to provide a small diameter controlled outlet to the ponds, adjacent to Tennessee St., and Rhode Island St. Secondly, I would recommend that the ponds on the back of the buildings be unified in groups of 2 or 4, as the proposed grades indicate in order to prevent the filling of any single one of them, and prevent possible foundation problems.

In order to limit the inconvenience to the owners, I would also like to recommend that these ponds be connected to the ponds draining onto Rhode Island, through a small diameter pipe. A solution on this type would allow the achievement of the City's purposes while minimizing the owners' inconveniences.

You may also advise your client that if he follows these suggestions, a private easement may have to be reserved over the pipes and ponds to gurantee their permeance over time.

Finally, I would like to request that the grading plan prepared by the architect, clearly indicates the configuration of the ponds and positive drainage of the parking lots to the ponds supplied.

I also believe that it would be adviseable if, at an early stage of plan preparation, the architect would review his plan with my Assistant, Fred Aguirre, in order to obtain later, the expeditious processing of the construction plans.

Very truly yours,

Bruno Conegliano
Assistant City Engineer-Hydrology

BC/lc
xc: Richard Leonard, AMAFCA
Richard Heller, City Engineer
Fred Aguirre, Civil Engneer
Drainage Report

WILSON & COMPANY
ENGINEERS & ARCHITECTS

262-2116
SCS 255-4350

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January 28, 1980

Mr. Richard S. Heller
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report
4 Plex Complex
Lots 5 thru 16, Block 2,
Unity Addition

Dear Mr. Heller:

Enclosed are four copies of the drainage report for a 12 unit 4-plex complex on the north side of Zuni Road S.E. between Rhode Island St. and Tennessee St.

I have discussed the project with Mr. Conegliano and I believe I have complied with his request, except it is not possible to have a common rear ponding area since the owner plans to fence each lot.

The depth of ponds shown on the plan sheet are for southwest landscape without percolation. If the owner decides to let the water percolate the depth of the ponds can be decreased 0.40 ft.

I will be glad to discuss this report with you at any time.

Very truly yours,
WILSON & COMPANY

Robert F. Sykes, P.E.

cc: Rymar Enterprises
125 Eubank Blvd., N.E.
Albuquerque, NM 87123

Enclosures

-sp