HOLIDAY PARK CHURCH
OF THE NAZARENE

F22-D6

1 PLAN

DRAINAGE REPORT

FOR

HOLIDAY PARK CHURCH OF THE NAZARENE
Albuquerque, New Mexico

PREPARED FOR:

Holiday Park
Church of the Nazarene
Albuquerque, New Mexico

BY:

A & E ENGINEERING, INC.
4100 Silver S. E.
Albuquerque, New Mexico
December 21, 1973

T. M. Conrardy

T. M. Conrardy, P.E. & L.S. 2933

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

January 8, 1973

Reverend Allmand
Holiday Park
Church of the Nazarene
Albuquerque, New Mexico

Gentlemen:

We are submitting this Drainage Report to you on The Holiday Park Church of the Nazarene. The control of the runoff shall comply with the requirements of the Albuquerque Metropolitan Arroyo Flood Control Authority and with present City of Albuquerque policies.

We appreciate this opportunity to serve you. If any questions develop, we will be available to assist you in your response.

Sincerely,

A & E ENGINEERING, INC.

Theodore M. Conrardy

Theodore M. Conrardy
P. E. & L. S. #2933

TMC:jg

4100 SILVER S.E. ALBUQUERQUE, NEW MEXICO 87108 505 266-8791

TABLE OF CONTENTS

	PAGE
Location and Description	1
Development	1
Proposed Drainage Plans	1
Discussion of Method	1
Onsite Drainage	2
Hydrologic Calculations	2
Channel Calculations	3
Summary	3

Location Plan
Drainage Plan

LOCATION AND DESCRIPTION

Nazarene is located on the north side of Montgomery Boulevard, N.E., approximently 1500 feet east of Juan Tabo Boulevard, N.E. It is a three-acre tract designated Tract "E" of The New Holiday Park Subdivision within the Soutnwest 1/4 of Section 34, Township 11 North, Range 4 East, N.M.P.M.

It is bordered on the north and west by undeveloped land and on the east by the City reservoir "Gutierrez". Nazarene's natural terrain slopes to the southwest at about a 3 percent grade. Visual observation discloses that the drainage from the northeast and adjoining property separates, part flowing southwesterly through the northerly portion of the subject tract, part southerly and southwesterly through the center of the tract.

DEVELOPMENT

The present development will be the construction of a church, concrete walks, and asphalt paving for parking areas.

Ponding depressions will be constructed so that the runoff from the property will not exceed that now experienced.

PROPOSED DRAINAGE PLANS

For this report the property and contiguous areas to the north and east were divided into four areas. Area 2 is re-divided to separate the northerly existing drainage flow which has no bearing on the property. Runoff from the minor paved area of Area 3 will outflow into Montgomery. Runoff from the church and paved parking area of Area 4 will outflow through a connecting "V" ditch (8' wide x 1' deep and 4:1 slopes) into two pond depressions (ponding area) having the capacity sufficient to contain this drainage. The drainage from Area 1 which now presently flows into this area will continue to flow into the swaled paved parking area and will outflow through the "V" ditch and into the ponds and may overflow the ponds and flow out into Montgomery Boulevard.

DISSCUSSION OF METHOD

The rational formula for small drainage areas was used to compute the expected runoff. The design storm was picked from the 100 years frequency curve in the master plan of drainage for the City of Albuquerque.

Development of this area will be controlled by the guidelines set forth in the recent Resolution of the Albuquerque Metropolitan Arroyo Flood Control Authority.

Ponding areas were calculated such that the volume of water ponded is sufficient to contain the drainage from the improved portion of Area 4.

ON-SITE DRAINAGE

The amount of storm water is computed by using a 100-year storm, this being a storm consisting of 100-year 6 hours precipitation as shown by the Rainfall Frequency Maps for New Mexico, June 1967, published by the Special Studies Branch, Office of Hydrology, United States Weather Bureau.

The 100 year 6 hour precipitation factor is 2.8 inches.

The building and paved area of the developed property is 26,566 Sq. Ft.

Calculation:

$\frac{2.8}{12}$ x 26,566 x .95 = 5,855 Cu. Ft.

2 Ponds, 130' x 40' and 100' x 20' with 3: 1 slopes to a depth of 2' = 11,484 Cu. Ft.

HYDROLOGIC CALCULATIONS

$C = CIA$ (Rational Method)

$t_c = \left(\frac{11.2\ L^3}{H}\right)^{0.385}$

$I = \frac{189}{t_c + 25}$ (100 year frequency)

AREA 1

A = 1.2A H = 8.2' L = 432'

t_c = 6.81 min. I = 5.94

Q = CIA = .6 x 5.94 x 1.2 = 4.28 c.f.s.

AREA 4 (paved)

A = .36A H = 5.67' L = 160'

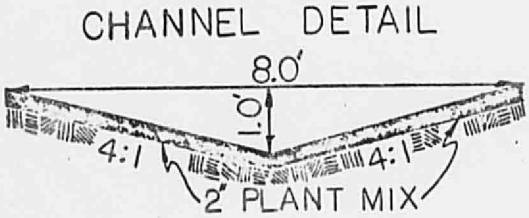
t_c = .95 min. I = 7.28

Q = CIA = .9 x 7.28 x .36 = 2.36 c.f.s.

Conclusion: Total Q at parking lot outlet = 6.64 c.f.s.

V = 2 f.p.s.

CHANNEL CALCULATIONS



$Q = 0.56 \frac{Z}{N} S^{\frac{1}{2}} Y^{8/3}$

H = 0.016 Asphalt Paving (Plant Mix)

S = 0.02

Y = 1'

$Z = \frac{\text{width}}{\text{depth}} \quad \frac{8}{1} = 8$

$\frac{Z}{N} = 500$

$Q_{\text{Channel Capacity}} = 39.5$ cfs. $\qquad Q_{\text{Actual}} = 6.64$ cfs.

Therefore Channel will carry flow.

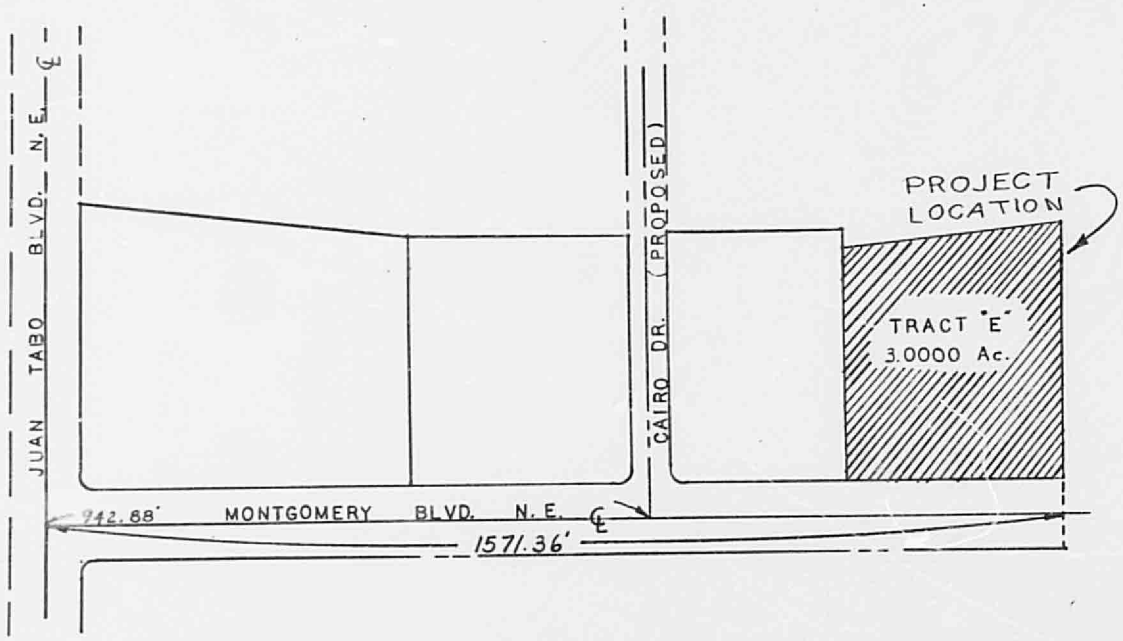
SUMMARY

The routing of water off the developed portion of Area 4 into the ponds of greater capacity will more than offset the drainage from Area 3 onto Montgomery Boulevard. The asphalt paved area in Area 4 will be constructed with a swale to carry the parking runoff and the drainage inflow from Area 1.

It is recommended that this development be approved since the findings of this report indicates that no increased runoff will occur and no damage to the surrounding area will be caused by this development.

HOLIDAY PARK
UNIT #1
LOCATION PLAN

SCALE: 1" = 200'



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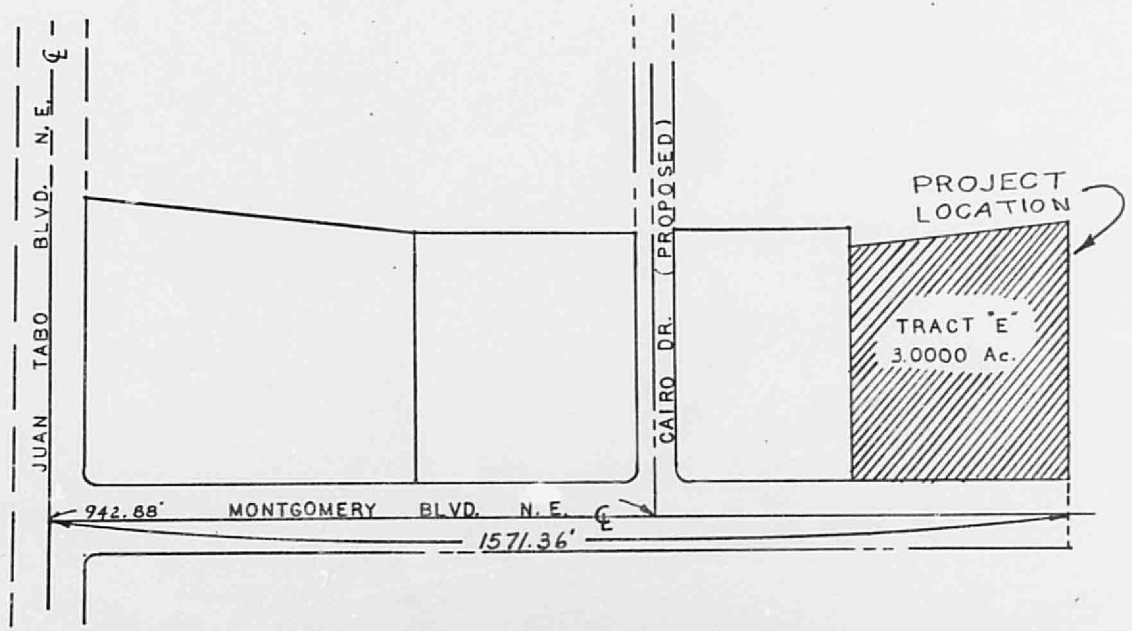

A&E ENGINEERING INC.
CIVIL ENGINEERING, LAND PLANNING, AND SURVEYING

February 6, 1974

RECEIVED
FEB 6 1974
CITY ENGINEERS

Mr. V. M. Kimmick
City Engineering Dept.
Albuquerque, New Mexico

Dear Mr. Kimmick:

Transmitted herewith is a blueline copy of the revised Drainage Plan for Holiday Park Church of the Nazarene for your review and approval.

Sincerely,

A & E ENGINEERING, INC.

John F. Esquibel

John F. Esquibel
President

JFE;jg

Bob.

4100 SILVER S.E. ALBUQUERQUE, NEW MEXICO 87108 505/266-8791

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

January 21, 1974

Mr. Kimmick
City Engineering Department
Albuquerque, New Mexico

Dear Mr. Kimmick:

Transmitted herewith is a Drainage Report for the Holiday Park Church of the Nazarene for your review and approval.

Sincerely,

A & E ENGINEERING, INC.

John F. Esquibel

John F. Esquibel
President

JFE:jg

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